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Geotechnical Investigation Work Plan

Waste Disposal, Inc.
Superfund Site Redevelopment

Santa Fe Springs, California

Prepared for:

Revita WDI, LLC
2050 S. Bundy Drive, Suite 225
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December 3, 2008
Project No. REV 07-01E

KFM
GEOSCIENCE

Project No. REV 07-01E
December 3, 2008

Mr. Greg Walden
Revita WDI LLC
2050 S. Bundy Drive, Suite 225
Los Angeles, CA 90025

Subject: **GEOTECHNICAL INVESTIGATION WORK PLAN**
Waste Disposal, Inc. Superfund Site Redevelopment
Santa Fe Springs, California

Dear Mr. Walden:

KFM GeoScience is pleased to submit this Work Plan describing the scope of the proposed geotechnical investigation for the redevelopment of the Waste Disposal, Inc. Superfund Site in Santa Fe Springs, California. The purpose of this Work Plan is to present strategies and methods of obtaining sufficient geotechnical data for the basis of the design for the site redevelopment as well as improvements within the development.

We appreciate the opportunity to provide our professional services on this project. If you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
KFM GeoScience

Peter Skopek, Ph.D., G.E. 2635
Principal Engineer

Filename: WDI Geotechnical Work Plan.doc

Distribution: Addressee (pdf by email gwalden@revitadev.com)

TABLE OF CONTENTS

FIGURES

TABLES

APPENDIX

1. INTRODUCTION

KFM Geoscience (KFMg) has been retained by Revita WDI, LLC to prepare geotechnical designs for the redevelopment of the Waste Disposal Inc. (WDI) site in Santa Fe Springs, California (Figure 1). Revita intends to redevelop the WDI site while complying with the major components of the existing Amended Record of Decision (AROD). As part of the design process it is critical that sufficient geotechnical data be gathered to provide a basis for the design of the overall proposed development as well as for the individual improvements within the development. This Geotechnical Investigation Work Plan has been prepared to address that need.

1.1. Site Location and Description

The WDI Superfund site is located in the City of Santa Fe Springs, on approximately 38 acres of land divided into multiple parcels. The site consists of 22 individual parcels of land that are owned by as many as 20 landowners. Owners and tenants operate roughly 35 on-site small businesses around the perimeter of the site. A high school with athletic fields is located immediately adjacent to the northeast corner of the site. A residential area is located across the street to the east.

The site was previously used as a disposal site for oil field wastes and has been the subject of extensive site investigation activities. Based on the results of site investigation activities, a site remedy was developed that included:

- Capping of portions of the site, near its center with a Resource Conservation and Recovery Act (RCRA) Subtitle C-equivalent cap;
- Capping of other portions of the site with variations of a RCRA Subtitle D-equivalent cap;
- Extraction of subsurface gas from the center portion of the site and venting of subsurface gas in other portions of the site;
- Extraction of liquids from the center portion of the site;
- Ongoing long term soil gas and groundwater monitoring.

A more detailed description of the history of the WDI site, investigations conducted, and implemented remedy elements is provided in Section 2.0. A site plan showing current site conditions is included as Figure 2. Copies of the As-built Plans for the site remedy are included in Appendix A

1.2. Project Objectives

The purpose of this geotechnical investigation described in this Work Plan is to collect sufficient field data to allow for the geotechnical design and construction of proposed site improvements.

1.3. Project Organization

All work for this investigation will be performed by KFMg personnel and KFMg subcontractors (testing laboratory, drillers, contractors, suppliers, etc.). The activities described in this Geotechnical Investigation Work Plan will be overseen by Mr. Peter Skopek, Ph.D., G.E. The primary contact for Revita WDI, LLC will be Mr. Greg Walden. Revita is being supported in the overall redevelopment design by Bryan A. Stirrat & Associates (BAS). Mr. Greg Acosta, P.E. and Mr. Kevin Fellows, P.E. of BAS will be available as resources to KFMg in the implementation of this Work Plan.

The WDI Potentially Responsible Parties Group (WDIG) will be represented on this project by Project Navigator Limited (PNL). Mr. Ken Floom will be the primary project contact at PNL. Regulatory oversight will be provided by USEPA Region IX with support from the California Department of Toxic Substances Control (DTSC). The USEPA Project Manager is Mr. Russell Mechem. The DTSC primary reviewers are Ms. Jessy Fiero, Mr. Ram Ramanujam, and Mr. Steve McAdrle. The Corps of Engineers is represented by Mr. John Erwin. The involved parties can be reached as follows:

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2. SITE BACKGROUND AND PROPOSED DEVELOPMENT

2.1. Site Background

As stated previously, the WDI Superfund site is located in the City of Santa Fe Springs, on approximately 38 acres of land divided into multiple parcels. The site consists of 22 individual parcels, owned by as many as 20 landowners. Owners and tenants operate roughly 35 on-site small businesses around the perimeter of the site. A high school with athletic fields is located immediately adjacent to the northeast corner of the site. A residential area is located across the street to the east.

At its center, the WDI site contains a buried circular earthen perimeter berm concrete-lined 42-million gallon reservoir originally constructed for storage of crude petroleum. The reservoir (also referred to as "the Dial") was decommissioned in the late 1920s, with the site being used until the mid-1960s for disposal of a variety of hazardous substances including both liquid and solid wastes. Wastes disposed of at the site include petroleum-related chemicals, solvents, sludges, construction debris, drilling muds, and other waste materials. Historical aerial photographs show that liquids were discharged to the reservoir and into some areas surrounding the reservoir. The reservoir and portions of the site area were covered with soil during the 1960s. Soil borings indicate that the reservoir is covered by five to ten feet of fill soil. The 15,000 residents of Santa Fe Springs obtain drinking water from wells within 3 miles of the site. The closest residence is within 50 yards of the site.

In 1984 and 1985, testing by the City of Santa Fe Springs detected numerous hazardous substances, including benzo(a)pyrene, phenol, benzene, and toluene, in materials at the facility at depths of as much as 22 feet below ground surface (bgs). Groundwater occurs at a depth of approximately 50 feet bgs.

In 1988 EPA erected a fence around the site to limit the potential for direct contact with site contaminants, and placed multilingual signs at the site to inform the public of potential health risks.

In 1988 and 1989, EPA conducted a remedial investigation (RI) to determine the nature and extent of contamination at the site and to identify possible long-term cleanup actions. The 1989 RI Report concluded that the main potential source of contamination was the reservoir; however, it also identified areas outside of the reservoir that were potential sources of subsurface contamination at the site. The RI Report confirmed the observation form the aerial photographs and concluded that several areas surrounding the reservoir were used as unlined containment ponds for waste disposal and that other areas may have been contaminated by the migration of subsurface liquid wastes or gases.

Late in 1993, EPA issued a Record of Decision (ROD) that selected an environmental remedy to address soils and subsurface gas at the site. This remedy consisted of installing a hazardous waste cap, with gas extraction and treatment, if necessary. The purpose of the capping systems

was to isolate the waste material from direct human contact and minimize the potential for surface water infiltration and prevent the release of any soil vapor to the atmosphere.

After the 1993 Record of Decision was signed and the design of the remedy was underway, new information about the extent of contamination at the site became available. Between 1997 and 1999, EPA and the Waste Disposal, Inc. Group (WDIG), an oversight group formed to investigate, plan for and implement a final remedy for the site, renewed site investigation activities to further define the limits and characteristics of the waste material buried at the WDI site, the extent of subsurface liquids, and the extent of subsurface gas in the reservoir and surrounding areas. Information gathered in these Remedial Design (RD) investigations was used to reevaluate and revise the remedial design for the site. Results of these investigations indicated that an estimated 80% of the site contained buried waste at depths ranging from 5-30 feet, and that buried wastes are present underneath many of the buildings located around the perimeter of the site. The reservoir contained pockets of liquid waste and some of the buried wastes outside of the reservoir also contain liquids. Soil gas investigations revealed the presence of benzene, vinyl chloride, trichloroethene (TCE), and tetrachloroethene (PCE) and methane in subsurface gases. Elevated levels of these contaminants were detected both inside the reservoir and in localized areas outside of the reservoir, including near some on-site buildings. Boring logs from the investigations also identified construction and demolition (C&D) debris are present beneath the site and that the dike that had been constructed along the northern property boundary contained a significant amount of C&D debris.

The WDIG completed a Remedial Design Investigative Activities Summary Report in May 2001. The report summarized the key findings of recent and past investigations conducted at the site. Using the information from investigations performed at the site, the WDIG prepared a Supplemental Feasibility Study (SFS), which evaluated a variety of remedial alternatives for the site. Based on the results of the SFS, EPA developed a preferred alternative for site cleanup. The preferred alternative was presented to the public and community for comment in the Proposed Plan, which was issued as a Fact Sheet in May 2001. EPA held a public comment period on the Proposed Plan from June 1, 2001 to July 2, 2001 and accepted comments on the preferred alternative in writing and orally. EPA also conducted a public hearing on June 14, 2001 in Whittier, California.

The AROD was signed one year later in June 2002, presenting a selected remedy with the following major components:

1. Installation of a RCRA-equivalent cap for hazardous waste over the existing reservoir (the Dial);

2. Installation of engineered capping systems for areas outside the reservoir designed to achieve RCRA solid waste engineering and performance standards (hydraulic conductivity of 10^{-6} cm/sec), and consisting of graded soil monofill covers, asphalt, concrete paving, and/or building foundations;

3. Installation of a gas collection, extraction, and treatment system beneath the RCRA-equivalent cap over the reservoir to collect, remove and treat subsurface gases;

4. Installation of liquids collection systems including liquids collection points (LCPs) in the reservoir, to monitor, collect and extract leachate and free liquids for treatment and disposal at an off-site facility approved by EPA;

5. Use of engineering controls (e.g. physical barriers and/or indoor venting systems) as needed within existing and new buildings overlying or adjacent to waste to prevent exposure to site contaminants;

6. To minimize the potential exposure to soil gas, passive gas migration control (e.g. bioventing wells) or active soil vapor extraction systems were installed along portions of the waste perimeter outside the reservoir area and near existing building with monitoring systems installed to ensure performance;

7. Implementation of institutional controls (ICs), including zoning ordinances, access controls, groundwater use restrictions, and restrictive covenants, ensuring the integrity of remedial systems, minimize the potential for exposure to residual wastes and hazardous substances, and to restrict land use and site access.

8. Implementation of long-term groundwater monitoring to ensure that the revised remedy is not contributing to exceedances of groundwater standards; and

9. Implementation of long-term operations and maintenance (O&M) to ensure that all environmental systems and control components are functioning effectively.

The WDIG prepared the engineering design package for the environmental remedy and EPA approved the final package in June 2003. The RD encompassed the remedial components specified in the AROD. The remedial design uses several types of engineered capping systems, including (1) a highly protective, multi-layered RCRA Subtitle C-equivalent cap for the Dial area, (2) a multi-layered RCRA Subtitle D-equivalent cap overlying waste materials outside of the dial, and (3) asphalt and concrete RCRA Subtitle D-equivalent capping materials surrounding existing buildings in the site perimeter. Much of the central portion of the site is topped with a grassy, vegetative soil cover sloped to prevent ponding of water and facilitate surface water drainage. The design includes stormwater and sediment control features. The RD also included an active soil vapor gas collection and treatment system employing a central pumping system to pump soil gas through a star-shaped, radial pipeline system to a treatment system located at the center of the dial. The treatment system consists of a small granular activated charcoal filtration system. For work close to existing buildings, the WDIG developed parcel-specific Work Plans describing the procedures for installing asphalt and/or concrete capping materials for each parcel. The design also called for construction work inside existing buildings to seal cracks and improve floor materials so that existing foundations could serve as capping material.

WDIG began remedial action construction in March 2004 and proceeded in accordance with the approved remedial design. EPA provided coordination with federal, state, and municipal agencies which have interests or oversight roles at the site. EPA established an interagency committee that reviewed project planning and design deliverables and provided oversight during construction. The EPA also contracted with the U.S. Army Corps of Engineers (USACE) to provide field oversight and inspection services during the construction phase of the project.

EPA and USACE determined that the WDIG construction team successfully completed the following key activities during construction of the remedy:

- Excavation and re-compaction of contaminated soil and other unsuitable materials under the new landfill cover in order to achieve design-specified contouring and grade levels.
- Reconditioning of large quantities of existing buried construction debris and large chunks of concrete for cost-effective use in building the cover foundations.
- Backfilling excavated areas with suitable materials.
- Installation of geosynthetic materials (e.g., geosynthetic clay liner and HDPE geomembrane (RCRA Subtitle C-equivalent cap only) that function as barrier components in the RCRA-equivalent final covers.
- Implementation of engineering controls, i.e., crack-sealing of parcel-specific building foundations that will serve as final covers.
- Installation of asphalt and concrete RCRA-equivalent covers in commercial areas on the site.
- Installation of landfill gas extraction and treatment systems for the area overlain by the RCRA-C equivalent cover.
- Initial revegetation and landscaping of final covers and areas directly adjacent to the neighboring high school. EPA approved the Combined Remedial Action & As-Built Report on September 14, 2006. Operations of the gas extraction and treatment systems in were initiated in March 2005.

The WDIG is currently conducting on-site activities in accordance the Long Term Operations, Maintenance and Monitoring Plan for the Site approved by EPA on September 21, 2006. These activities include:

- Routine Inspections – Routine inspections of the engineered caps and all site systems.
- Cap Maintenance – Routine maintenance and repair of RCRA-equivalent, asphalt and concrete engineered capping systems.
- Maintenance of Soil Vapor Collection & Treatment Systems – Routine inspection, maintenance and repair of soil vapor wells, air monitoring systems, and soil vapor collection and treatment systems.
- Collection & Extraction of Liquids from the Reservoir – Bailing and later installation of low-volume pumping systems to remove very low volumes of liquids from the central reservoir area (“dial”). Liquids are shipped offsite to an EPA-approved hazardous materials treatment facility.

- Maintenance of Vegetative Cover – Inspections, mowing, and hydroseeding of vegetative soil cover to help maintain and protect the integrity of the cap, control stormwater run-off, and maintain a natural appearance.
- Stormwater & Sedimentation Control Features – Inspection and repair of stormwater and sediment control systems (swales, berms, retention structures, etc.).
- Landscaping – Periodic mowing, pruning, and weeding of site vegetation.
- General housekeeping – General site maintenance.
- Long Term Groundwater Monitoring – Semi-annual collection and analysis of samples of groundwater at the site and semi-annual reporting to EPA.
- Long Term Soil Vapor Monitoring – Quarterly sampling and analysis with semi-annual reporting.
- Long Term Indoor Air Monitoring – Quarterly monitoring at indoor air monitoring locations at the site with semi-annual reporting.
- Corrective Action – Identification and implementation of corrective actions as determined necessary by EPA.

With funding from EPA, the City of Santa Fe Springs prepared a formal specific use plan for the WDI site. EPA and the WDIG coordinated with the City throughout the planning process to help maintain consistency between the remedial design and the City's land use plan. The City's municipal council adopted the WDI site Specific Use Plan on May 13, 2004. The plan prohibits future residential land uses and provides guidelines and requirements regarding future industrial redevelopment at the site. It also places certain restrictions and land use controls that are intended to help protect the environmental remedy.

2.2. Proposed Development Elements

The current proposed WDI Site development encompasses only the central portions of the WDI site as depicted on conceptual site development plan included as Figure 2-1. The total proposed development area is 20.4 acres with access being from Santa Fe Springs Boulevard on the west and Greenleaf Avenue on the east. As shown in the conceptual plan, the proposed development will include hardscaped, at-grade yards across the majority of the site. Almost all of these areas are underlain by waste material with either a Subtitle-C equivalent cap or Subtitle-D equivalent cap as described in Section 2.1.

Perimeter retaining walls will be required around the majority of the site to allow for proper drainage. The two most significant of these walls will be along the north property boundary, where the cantilever retaining wall height may vary from 8 to 14 feet and support 6- to 8-foot screen wall; and along the west property boundary in the northwest corner, where the wall height is anticipated to be 8 feet. The north wall alignment is underlain by native material. However, this northern wall is planned to be constructed at the toe of the earthen dike along the northern site boundary that reportedly contains significant amounts of construction and demolition debris. The west wall alignment is predominantly underlain by native material, although fingers of waste may extend beneath the alignment in places. An asphalt overlay acts as the existing cover along the alignment of the proposed western retaining wall.

Shorter walls, with anticipated heights of less than 36 inches are currently planned for the southern and southeast property boundaries. These areas are underlain predominantly by covered waste materials. The cover in these areas is the Subtitle-D equivalent GCL cover described in Section 2.1 along its interface with native material or the asphalt overlay on the adjacent property. Portions of the alignments of these shorter southern and southeastern walls are over native material. However, even in these areas, the GCL material is present.

There is a possibility that the development may include a site building in the northeast corner (as shown in Figure 2-1), constructed entirely outside of the footprint of the deposited waste material. The need for such a building is currently being evaluated by Revita, in consultation with the City.

3. GEOTECHNICAL INVESTIGATION APPROACH

3.1. Geotechnical Investigation Strategies and Methods

In developing the engineering designs for the proposed site development, the site design team will need to gather sufficient geotechnical information to ensure that a proper basis of design has been established. The activities needed to gather that information are described in this Geotechnical Investigation Work Plan.

As stated previously, the grades at the site will need to be contoured to satisfy drainage requirements. It is expected that up to about 2 to 3 feet of fill will locally be required. For pavement and storage areas the surface cover will either be an asphalt pavement, or in areas with permanent heavy loads (e.g., loading docks, storage) a concrete pavement may be considered. The surface cover design will be based on traffic loading (i.e., dynamic transient load) as well as on conventional structural principles for slabs on grade supporting permanent loading. Consideration will be given to improve the performance of the pavement by placement of geogrids to strengthen the pavement subgrade (e.g., Tensar Dimension system) and to include fiberglass reinforcement within the asphalt pavement section (e.g., Bitutex) or conventional steel reinforcement in the concrete slabs on grade.

Although numerous borings and probes were advanced across the site, with the exception of 13 borings advanced by Lowney (2002) all of them focused on collection of environmental data and are of limited use for geotechnical design. Although the data collected in all borings and probes advanced at the site is being used to develop the understanding of the foundation conditions at the site the design of the proposed improvements within the refuse area requires additional structure-specific investigation of the geotechnical properties of the near surface materials that will support the pavements, slabs-on-grade, and small retaining walls. Proposed improvements outside the refuse areas on native soils which include the larger retaining walls and potential buildings at the site will also require structure-specific investigation of deeper materials. The focus of the geotechnical investigation covered in this work Plan will be to address the following development elements:

1. Evaluation of condition of the existing covers and collection of data to determine the properties of the existing cover components as it relates to the design of the pavement and proposed cover in the open, parking, and driveway areas including the proposed surface storage yards.

2. Geotechnical design parameters for a retaining wall of up to about 14 feet in height along the northern and northeastern boundary of the project located on native materials.

3. Geotechnical design parameters and recommendations for smaller retaining walls located on both native materials and areas underlain by waste along the west, south, and east perimeter of the site required for proper site drainage.

4. Geotechnical design parameters and recommendations for the proposed approximately 33,000 square-foot building in the northeast corner of the site located on native materials. (PROVISIONAL).

5. Geotechnical design parameters for light poles will be required depending on the location and size of the light standards. (PROVISIONAL)

The details of the proposed scope of investigation, including testing locations, distribution and depth of borings for each of the above elements are summarized in the Geotechnical Investigation Matrix (GIM) -Table 3-1. The proposed geotechnical investigations will consist of drilling deep borings and performing Standard Penetration Testing (SPT) in native non-waste areas, hand-augering shallow borings in cover materials above the low permeability barrier layers, and testing of near-surface compressibility using plate load testing. Approximate locations of these investigations are shown on Figure 3 – Geotechnical Investigation Location Map. The encountered materials will be logged and tested in the field and sampled for subsequent laboratory testing. Laboratory testing will focus on classification, plasticity, gradation, strength, compressibility, and permeability properties of the field materials.

The following paragraphs address some specific aspects of the proposed investigation.

- Geotechnical investigation for design improvements located above the Subtitle C- and D-equivalent cover areas will require evaluation of the properties of materials above and below the GCL and GCL/HDPE barrier layers as well as of the properties of the foundation layer, soil cover, and/or refuse materials below the barrier layers. This consideration applies to open, parking, and driveway areas as well as to some of the retaining walls located along the east, south, and west site perimeter.

  No penetration of borings and probes into the refuse is intended. Typical investigation activities to be performed in these areas will include:

  - In the Subtitle C- and D- equivalent cover areas shallow hand-auger borings will be excavated penetrating only into the upper vegetative layer above the low permeability

barrier cover components (GCL and HDPE). The cover will be repaired as outlined in Section 3.1.

- In the areas along the site perimeter where Subtitle D- equivalent cover is installed where no refuse is indicated according to the as-built plans, the cover will be penetrated into the native materials and the cover will be repaired as outlined in Section 3.1.

- In areas where alternative covers (asphalt, concrete) are installed where no refuse is indicated according to the as-built plans, the cover will be penetrated into the native materials and the cover will be repaired as outlined in Section 3.1.

- In areas above the refuse a non-invasive plate load test, which does not require penetration through the liner components, will be utilized. The plate load test is intended to evaluate the compressibility and uniformity of the near-surface materials without penetrating the CGL or GCL/HDPE liner. The plate-load reaches depths of approximately 2.5 times the plate diameter. As such, and in order to evaluate the properties of the foundation layer below the GCL or GCL/HDPE cover layers, it is proposed that a 12-inch diameter plate be used for the test, and that the base of the plate be set in a shallow excavation of approximately 12 to 18 inches deep. Care will be taken in creating the shallow excavation to ensure that the GCL or GCL/HDPE low permeability layers are not damaged or penetrated. It is intended that the plate will penetrate no more than about 1 inch into the subgrade. Consequently, the strains associated with the barrier layers deflection below the plate are expected to be acceptable. The plate load tests will be performed generally following ASTM Standard D1195 and AASHTO T-222-78.

- In the northwest corner of the site, a proposed retaining wall is generally located predominantly above native materials (i.e., not above refuse) in areas where the in-place site remedy includes a 2 inch asphalt overlay or concrete cover. Conventional methods of investigation can be implemented in this area and, as necessary, the cover will be repaired as outlined in Section 3.1.

- A 14-foot retaining wall designed to accommodate grading and stormwater design elements is proposed along the north property perimeter dike. Fill will be placed over the north slope of the perimeter dike and will be supported by the retaining wall. This wall, as well as the toe of the perimeter dike, are located outside of the waste areas but the backcut will require cutting into the dike composed of not well defined materials (previous investigations have indicated this to be construction debris fill). No penetration of the existing final covers is expected in this area and conventional geotechnical investigation methods will be implemented. It is expected that conventional shallow foundation systems will be appropriate for this construction.

- The construction of a habitable structure in the northeast corner is currently being considered to occur only outside the final cover areas where waste does not exist. Consequently conventional geotechnical investigation methods can be implemented in this area. It is

expected that conventional shallow foundation systems will be appropriate for this construction.

- A 6-foot retaining wall is considered in the northeast corner of the site to support the pad for the proposed building. This retaining wall is located entirely on native materials therefore it is expected that conventional geotechnical investigation and foundation methods will be implemented.

- Pending the decision of the design and regulatory team, foundations for light towers and/or poles may be required. The investigation for the foundations for such improvements will highly depend on the actual size and location of the light towers/poles and will be addressed once that decision is made.

- Field equipment not penetrating through the CGL/HDPE liner and/or refuse materials will not need to be decontaminated between test/boring locations or upon departure from the site. Although not anticipated, field equipment penetrating the CGL/HDPE liner and/or refuse materials will not need to be decontaminated between test/boring locations but will be decontaminated upon departure from the site.

- Repair procedures for excavations in the native areas as well as for all excavations penetrating any component of the existing final cover, including the surficial vegetative layer are provided in Section 3.1.

- Drill cuttings generated from any on-site drilling operations will be stockpiled and covered with plastic sheeting pending characterization for disposal purposes. Drill cuttings will be transported off-site for disposal per state and federal regulatory requirements. A Health and Safety Plan has been prepared for this work and is provided under a separate cover.

It is expected that the field investigation plan will be modified/finalized upon discussion with EPA and the design team, specifically with the civil engineering designer.

The field investigation scope, collected data, and results of all testing will be summarized in a geotechnical design report including provision of design recommendations for appropriate foundation system, slab on grade design, geogrid reinforcing systems, seismic structural design, and general grading and drainage recommendations.

3.2. Repair Procedure When Existing Cover Component is Penetrated

While performing this investigation the following repair protocols will be adhered to:

a) Penetration of the HDPE cover layer located within the Dial is not permitted and must be avoided.

b) When the vegetative layer is disturbed during excavation of shallow hand-auger borings or pits for the plate load test not exceeding 5 feet square, or similar excavation not

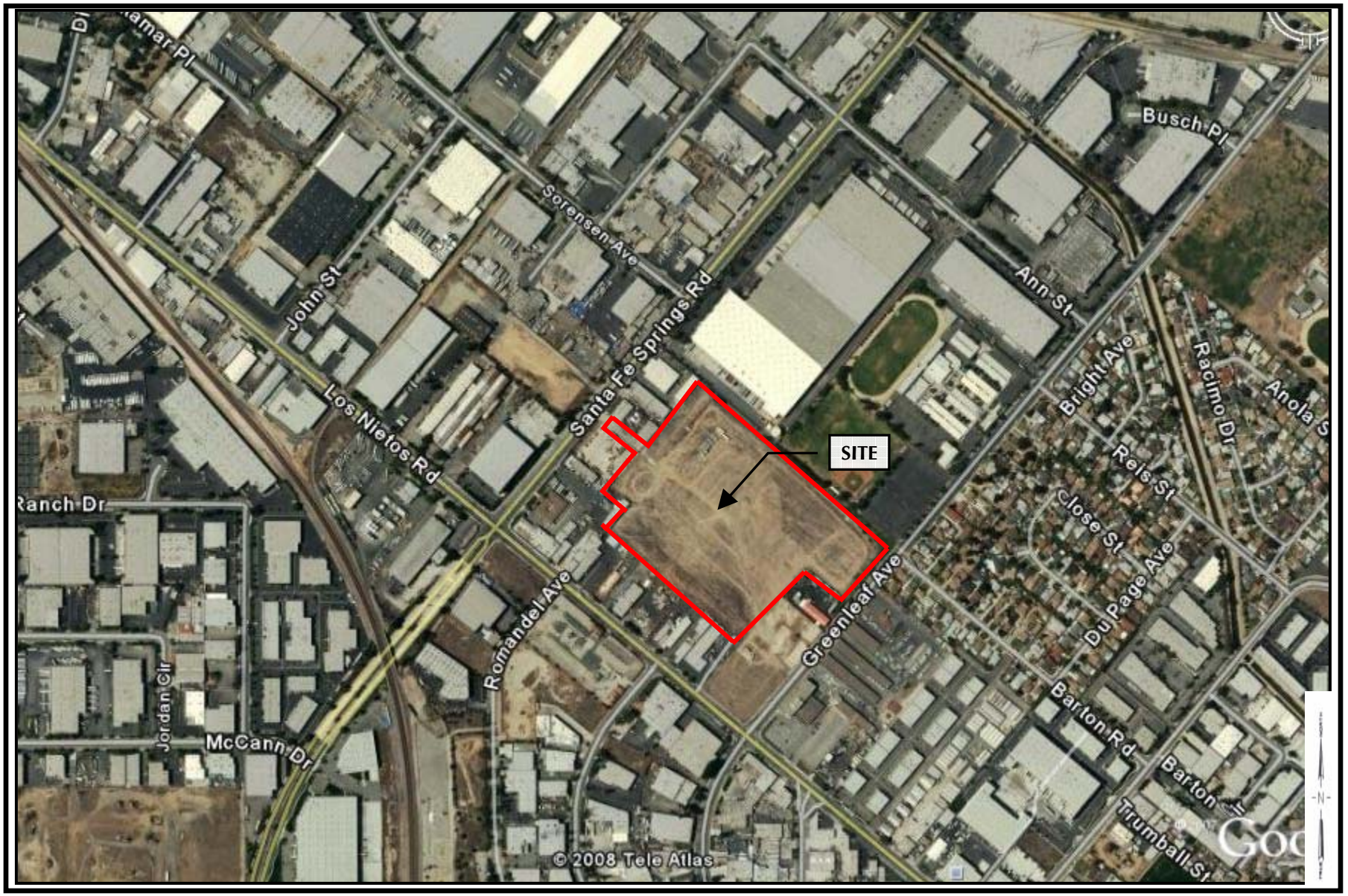
penetrating HDPE or GCL components, the excavation will be backfilled with either on site material or import soil with at least 25 percent of fines. The backfill will be moisture-conditioned to above optimum moisture content and compacted by hand methods to 85 to 90 percent of maximum dry density as determined by the latest edition of ASTM D1557.

c) If the GCL layer of the existing Subtitle D-Equivalent cover outside the Dial is penetrated the penetration will be repaired by backfilling a minimum of 1 foot above and below the GCL with a cement-bentonite slurry.

d) Where the existing asphalt or concrete cover is penetrated, the penetration will be repaired by quick-set high-strength concrete mix to a depth of at least 18 inches below the adjacent grade. The surface of the repair will be blackened, if needed, to better blend with the adjacent cover.

e) All excavations and borings in the native areas will be backfilled with tamped drill cuttings.

FIGURES



BRYAN A. STIRRAT & ASSOCIATES
CIVIL AND ENVIRONMENTAL ENGINEERS
1360 VALLEY VISTA DRIVE, DIAMOND BAR, CA
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Waste Disposal Inc. Site
Santa Fe Springs Road & Los Nietos Road
Santa Fe Springs, California

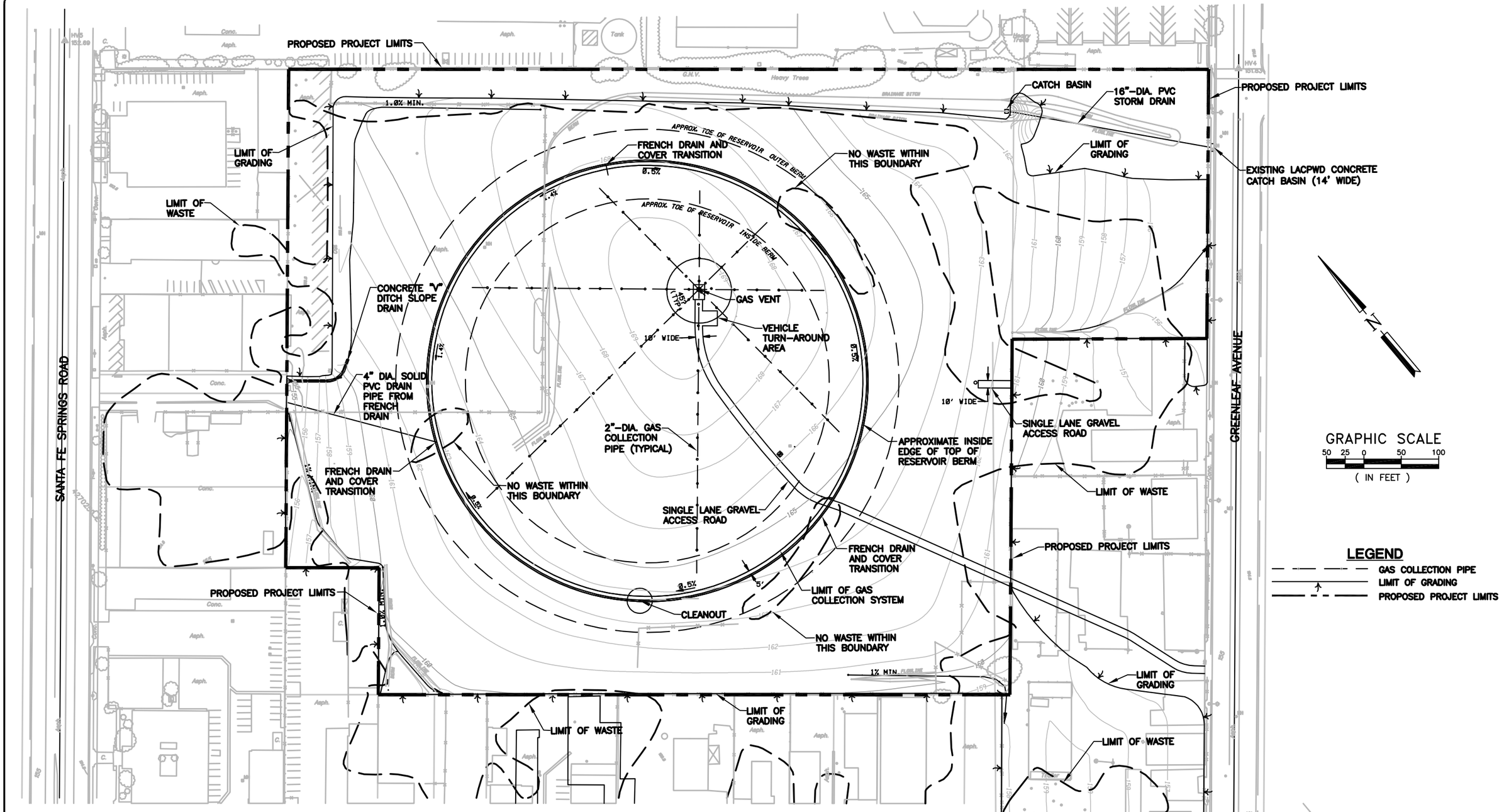
Figure 1
Site Location Map

JOB NO. 2007.0199 Phase 003A

DATE: September 4, 2008

DRAWN BY: K. Hall

FILE: J:\Revita\WDIG\Work Plan\Figure 1 – Site Location Map



SOURCE: TRC DRAWING NO. E-30747-SG019

FIGURE 2

(909) 860-7777
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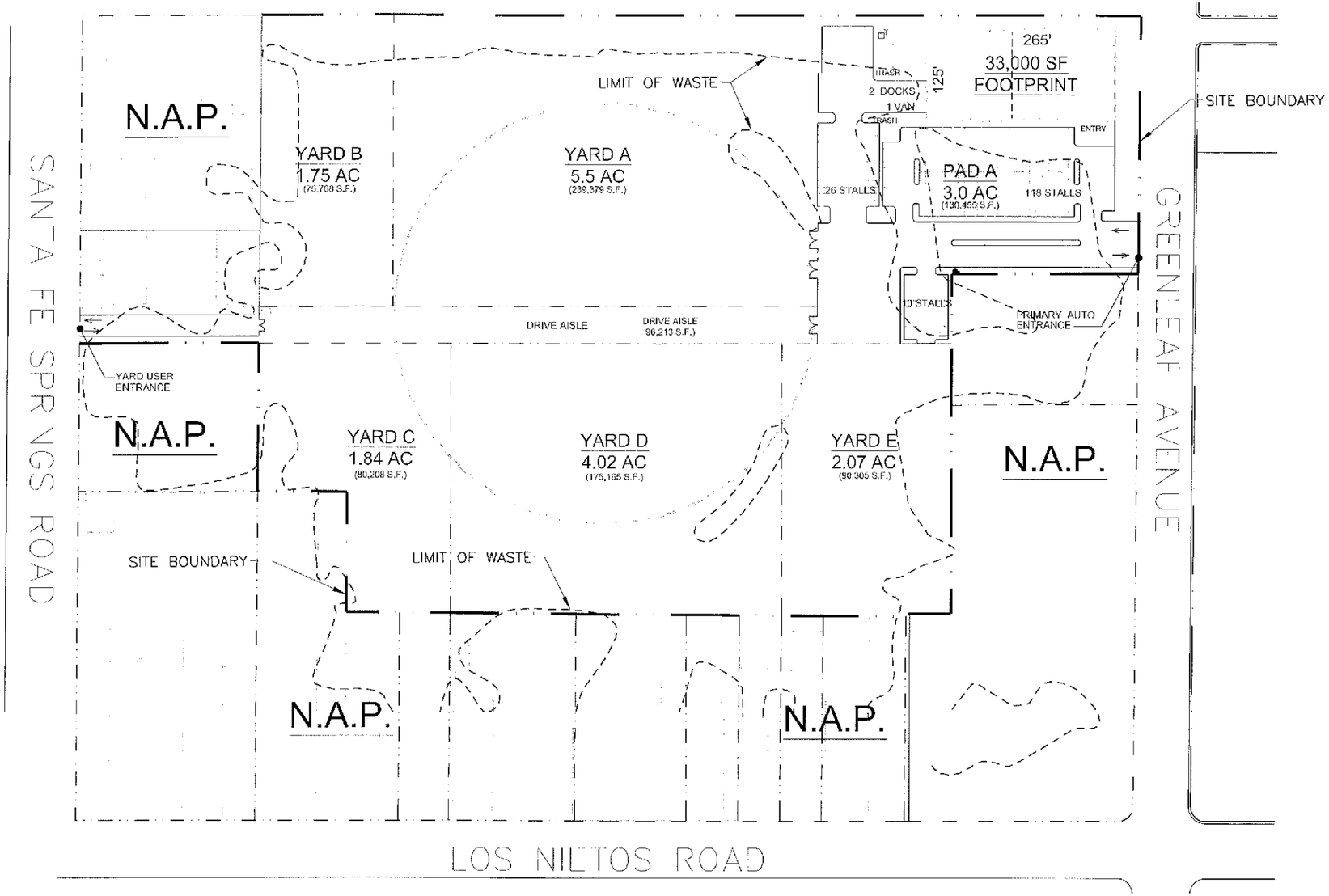
CIVIL AND ENVIRONMENTAL ENGINEERS
1360 VALLEY VISTA DRIVE DIAMOND BAR, CA 91765

Waste Disposal Inc. Superfund Site

SITE MAP

JOB NO.	2007-0199
DATE	9-2-08
DRAWN BY	A.R.C.
FILE NAME:	SITE MAP.DWG



NO.	REVISION DESCRIPTION	BY:

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

BAS
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STATE OF CALIFORNIA

WDI SITE DEVELOPMENT PROJECT
SITE DEVELOPMENT PLAN

DESIGNED BY : K.H.F. & G.A.		SCALE : AS SHOWN	
DRAWN BY : A.R.C. & F.A.		DATE : 10-2008	FILE NO.: 2 SITE DEVELOPMENT
CHECKED BY : NAME		DATE : 10-2008	
APPROVED BY : B.A.S.		DATE : 10-2008	SHEET 2 OF 1

LEGEND

- HA-31 — Hand Auger Boring Location
- HS-25 — Hollow Stem Auger Boring Location
- PL-19 — Plate Load Test Location
- Limits of Refuse
- Property Line
- Proposed Retaining Wall Alignment
- Proposed Building
- RCRA Subtitle C-Equivalent Cap Area
- RCRA Subtitle D-Equivalent Cover Area
- Engineered Asphalt Cover
- 2” Asphalt Overlay Cover
- Engineered Concrete Cover
- Engineered Concrete Cover with Sealed Cracks
- Sealed Asphalt

0 50 100
Scale

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

KFM GEOSCIENCE
1360 Valley Vista Drive
Diamond Bar, CA 91765
Phone (909) 860-5096

Project Name: WDI Superfund Landfill Redevelopment
Project Number: REV 07-01E
DATE: December 2008

Geotechnical Investigation Location Map

Figure 3

TABLES

TABLE 3-1 - Geotechnical Investigation Matrix

WDI Superfund Landfill Redevelopment

Development Element	Design Consideration	Needed Parameters	How to Obtain Needed Parameters	Investigation Activity			Engineering Processing of Data
				Field Investigation (Repair any disturbance of the cover per workplan; additional specific repair requirements are stated in the matrix)	Lab Testing		
SUBJECT SPECIFIC WORK PLAN for AC cover design	Design of surface cover Determine percolation rate through the proposed surface cover and demonstrate the equivalency with the existing cover systems	Unsaturated flow properties for AC and engineered subgrade described by ***soil water characteristic curve*** (SWCC) for use in HELP model. Specifically, determine saturated (0kPa) hydraulic conductivity (k), and conductivity at field capacity (-33kPa) and at wilting point (-1500kPa)	**SUBJECT TO SCHEDULE ACCORDING TO SEPARATE WORK PLAN** Prepare sample of characteristic asphalt mix (without Petromat or Bitutex) and perform water retention test	No field investigation required	Perform water retention test on 2 AC samples		Utilize the obtained SWCC in percolation analyses using HELP computer software Analyze if conventional aspahlt system is sufficent to eliminate the need for Petromat pavement system outside the Dial area (Subtitle D cover)
Surface Cover in Open Areas (i.e., aspahlt and concrete pavement in site yards)			Collect samples of the existing vegetative layer, perform soil characterization, and recompact selected samples to proposed design specifications (93% of maximum dry density at 110% of optimum moisture content) and perform the water retention test	Excavate 19 hand-auger borings at locations across the site including Subtitle C and Subtitle D - equivalent covers to the liner (GCL, HDPE geomembrane) and perform a field moisture and field density tests (sand cone or nuclear gauge method) and collect sack samples for characterization of vegetative layer material at approximately 0.5-foot and 1.5-foot depth. Collect a total of 38 sack samples.	Determine in situ moisture content, density, gradation, and plasticity.	Based on the results of this characterization identify 3 representative sample for water retention testing and perform the test	
	Pavement/slab-on-grade design Evaluate subgrade load capacity to support intended traffic and storage loads	In-situ soils ***conditon characterization*** , ***moisture content*** , and ***density and R-value*** determination for pavement design and tests to determine ***subgrade modulus*** and ***compressibility*** for slab-on-grade design	Collect samples of the existing vegetative layer, perform soil characterization, R-value, maximum dry density and optimum moisture content, and compressibility tests and recompact selected collected soil to proposed design specifications (93% of maximum dry density at 110% of optimum moisture content) and perform consolidation tests on recompacted material			Perform 7 compressibility tests on the samples collected at the lower elevations. Perform 3 R-value tests on samples with the highest plasticity. Perform 3 - 5 maximum dry density tests on characteristic sack samples.	Utilize the obtained data in pavement and slab-on-grade design
			Perform plate load test above the GCL layer to obtain compression characteristics of the subgrade materials including the foundation layer below the liner.	Perform 8 field plate load tests 1.5 feet below the ground surface. All plate load tests will be performed at the location of hand-auger boring.	None		
Northern Retaining Wall (about 7 to 14 feet high 1,100 feet long CMU retaining wall along the school property boundary)	Retaining wall and wall foundation design Wall alignment is located entirely on native materials	Evaluate native/fill soil conditions in the foundation subgrade to determine ***compressibility*** and ***bearing capacity*** of the native subgrade materials	Collect samples along the length of the wall alignment and in the backcut area and research historical and as-built information about the dike. Identify the kind and extent of refuse, man-made, and native materials. Perform conventional geotechnical laboratory testing. Topographic survey along the northern site boundary is required.	Historical/as built information survey for the perimeter slope dike. Perform topographic survey along the northern site boundary (by others).	Determine in situ moisture content, density, gradation, plasticity, compressibility, and shear strength parameters.		Prepare recommendations for foundation design, lateral pressures on the retaining wall, sesimic design, and backcut slope stability.
	Backcut excavation design It is expected that the heel of the wall will extend up to 9 feet behind the face of the wall and the backcut will slope approximately at 1.5(H):1(V)	Define the composition and ***shear strength*** of perimeter dike materials to determinae the temporary stability of the backcut		Excavate 6 borings using truck- or track- mounted hollow-stem drill rig along the toe of the wall alignment and approximately 6 borings on top of the slope behind the wall. Collect California Modified ring samples at 2- to 5- foot intervals and at least 20 feet into the native materials. Anticipate total boring depths of about 30 feet at the toe of the wall and 45 feet for borings drilled on top of the dike. Anticipate a total of about 8 to 15 samples per boring.		
Northeastern Retaining Wall (6 feet high 200 feet long CMU retaining wall along Greenleaf Avenue)	Retaining wall and wall foundation design Wall alignement is located entirely on native materials	Evaluate native/fill soil conditions in the foundation subgrade to determine ***compressibility*** and ***bearing capacity*** of the native subgrade materials	Collect samples along the length of the wall alignment and in the backcut area. Identify the kind and extent of refuse, man-made, and native materials. Perfom conventional geotechnical laboratory testing.	Excavate 2 borings using truck- and/or track- mounted hollow-stem drill rig along the wall alignment. Collect California Modified ring samples at 2- to 5- foot intervals and at least 15 feet into the native materials. Anticipate total boring depths of about 15 feet. Anticipate a total of about 5 samples per boring.	Determine in situ moisture content, density, gradation, plasticity, compressibility, and shear strength parameters.		Prepare recommendations for foundation design, lateral pressures on the retaining wall, and backcut slope stability.
Western Retaining Wall (CMU retaining wall along the west property boundary, 1.5 to 8 feet high, approximately 800 feet long)	Retaining wall and wall foundation design Northwest portion of the wall is located mostly outside the refuse and on 2" AC overlay cover Southwest portion of the wall is located mostly on refuse but also on native materials on Subtitle D-equivalent cover	Evaluate depth, condition, uniformity, and ***compressibility*** and ***bearing capacity*** of the vegetative layer, foundation layer, and underlying foundation subgrade materials and native soil	In the areas above the refuse collect samples of the vegetative layer and perform basic geotechnical laboratory testing. In the areas above native materials collect samples of the cover and penetrate about 10 feet into the native materials and perform basic geotechnical laboratory testing.	In the areas above the refuse excavate 6 borings to the GCL liner using hand-auger at no more than 200-foot intervals along the wall alignment and perform a field moisture and field density tests (snad cone or nuclear gauge method) and collect sack samples for characterization of vegetative layer material at approximately 0.5-foot and 1.5-foot depth. Collect a total of 12 sack samples. In the northwest where no refuse is identified in the as-built plans where the wall will be 7 to 8 feet high excavate 2 truck-mounted hollow stem borings through the existing 2" AC overlay to a depth of at least 8 feet. Repair the AC overlay cover per work plan. In the southwest corner where no refuse is identified in the as-built plans where the wall will be 1.5 to 2.5 feet high excavate 1 truck-mounted hollow stem boring through the existing Subtitle-C cover to a depth of at least 8 feet. Repair the cover per workplan. In all hollow stem borings collect relatively undisturbed California Modified sampler ring samples of native materials at approximately 2-foot vertical intervals starting about 1 foot below the exisitng grade AND	Determine in situ moisture content, density, and compressibility.		Prepare recommendations for retaining wall foundation design and preparation of the subgrade.
			In areas above the refuse use the plate load test above the GCL layer to obtain compression characteristics of the subgrade materials including the foundation layer below the liner.	Perform about 4 field plate load tests 1.5 feet below the ground surface along the wall alignment. All plate load tests will be performed at the location of hand-auger boring.	None		
Drainage/Access Easement (Mersists Lot) (access road pavement)	Pavement/slab-on-grade design The easement is located partially above refuse and partially on native soils. The existing surface is engineered concrete cover. Evaluate subgrade load capacity to support intended traffic loads. For the design it is not expected to prepare the subgrade beyond surficial recompaction, therefore the observed subgrade conditon will also be the design subgrade condition.	Determine ***subgrade modulus*** and ***compressibility*** for slab-on-grade/pavement design	Core the existing concrete cover above the anticipated native soils and determine subgrade modulus and compressibility for slab-on-grade/concrete pavement design.	At 1 location above the native soils core the existing concrete cover and advance 1 truck-mounted hollow stem auger boring to a depth of about 8 feet and collect about 3 relatively undisturbed California Modified sampler ring samples for characterization of the native soils starting at a depth of approximately 1 foot at approximately 2-foot vertical intervals and about 2 composite sack samples.	Determine in situ moisture content, density, gradation, and plasticity and perform 2 compressibility tests on the collected samples.		Utilize the obtained data for slab-on-grade/pavement design
			Sawcut the existing concrete cover above the anticipated refuse and perform field plate load tests to determine subgrade modulus and compressibility for slab-on-grade/concrete pavement design.	At 1 location above the refuse sawcut the exisiting concre cover and perform plate load test on the exposed surface.			
Southern Retaining Wall (1.5 to 2.5 feet high, approximately 900 feet long, CMU retaining wall along the south property boundary)	Retaining wall and wall foundation design Wall alignment is located mostly on refuse covered by Subtitle D-equivalent cover	Evaluate depth, condition, uniformity, and ***compressibility*** and ***bearing capacity*** of the vegetative layer, foundation layer, and underlying foundation subgrade materials and native soil	Collect samples of the vegetative layer along the length of the wall alignment. Excavate shallow borings and sample the vegetative cover material Perform basic geotechnical laboratory testing.	Excavate 4 borings using hand-auger at no more than 200-foot boring intervals along the toe of the wall alignment and perform a field moisture and field density tests (sand cone or nuclear gauge method) and collect sack samples for characterization of vegetative layer material at approximately 0.5-foot and 1.5-foot depth. Collect a total of 8 sack samples. AND	Determine in situ moisture content, density, and compressibility.		Prepare recommendations for retaining wall foundation design and preparation of the subgrade.
			Perform plate load test above the GCL layer to obtain compression characteristics of the subgrade materials including the foundation layer below the liner.	Perform about 4 field plate load tests at 1.5 feet below the ground surface along the wall toe.	None		

TABLE 3-1 - Geotechnical Investigation Matrix

WDI Superfund Landfill Redevelopment

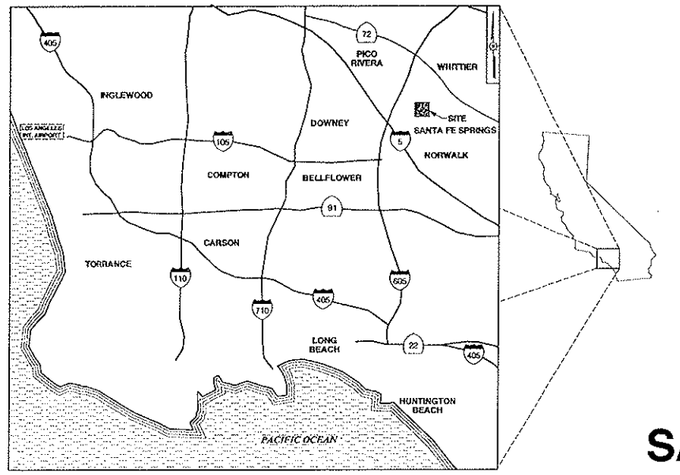
Development Element	Design Consideration	Needed Parameters	How to Obtain Needed Parameters	Investigation Activity		Engineering Processing of Data
				Field Investigation (Repair any disturbance of the cover per workplan; additional specific repair requirements are stated in the matrix)	Lab Testing	
Southeastern and Eastern Retaining Wall (1.5 to 2.5 feet high, approximately 600 feet long, CMU retaining wall along eastern property boundary)	Retaining wall and wall foundation design Wall alignment is located on refuse as well as on native materials covered by Subtitle D-equivalent cover	Evaluate depth, condition, uniformity, and ***compressibility*** and ***bearing capacity*** of the vegetative layer, foundation layer, and underlying foundation subgrade materials and native soil	In the areas above the refuse collect samples of the vegetative layer and perform basic geotechnical laboratory testing. In the areas above native materials collect samples of the cover and penetrate about 10 feet into the native materials and perform basic geotechnical laboratory testing.	In the areas above the refuse excavate 2 borings using hand-auger and perform a field moisture and field density tests (sand cone or nuclear gauge method) and collect sack samples for characterization of vegetative layer material at approximately 0.5-foot and 1.5-foot depth. Collect a total of 4 sack samples. In the areas where no refuse is identified in the as-built plans excavate 3 truck-mounted hollow stem boring through the existing Subtitle-C cover to a depth of at least 8 feet and collect about 3 relatively undisturbed California Modified sampler ring samples for characterization of the native soils starting at a depth of approximately 1 foot at approximately 2-foot vertical intervals and about 2 composite sack samples. Repair the cover per workplan. AND	Determine in situ moisture content, density, and compressibility.	Prepare recommendations for retaining wall foundation design and preparation of the subgrade.
			In areas above the refuse use the plate load test above the GCL layer to obtain compression characteristics of the subgrade materials including the foundation layer below the liner.	Perform 2 field plate load tests 1.5 feet below the ground surface along the wall alignment. All plate load tests will be performed at the location of hand-auger boring.	None	
-- PROVISIONAL -- **On-site Building**	Foundation design Located on native materials in the northeast corner	Native/fill soil conditions in the foundation subgrade to determine ***compressibility*** and ***bearing capacity*** of the native subgrade materials	Collect samples within the footprint of the building. Evaluate the conditon of native materials. Perfom conventional geotechnical laboratory testing.	Excavate 4 borings using truck-mounted drill rig in the corners and center of the proposed building to depths of 20 to 40 feet. Collect California Modified ring samples at 2- to 5- foot intervals. Anticipate a total of about 8 to 13 samples per boring.	Determine in situ moisture content, density, gradation, plasticity, compressibility, shear strength parameters, and soil corrosion potential.	Prepare recommendations for building structural and civil design.
-- PROVISIONAL -- SUBJECT TO SPECIFIC WORK PLAN **Light Towers / Poles** (size, locations, and number not yet determined)	Foundation design	Foundation conditions depending on the location and size of the light post. It is assumed that the ligh posts will be all located along the perimeter of the site and outside the refuse areas	**SPECIFIC WORK PLAN WILL BE SUBMITTED UNDER A SEPARATE COVER PENDING DEVELOPER/CITY DECISION** For tall (>~30 feet) light towers collect samples at the tower locations. Identify the kind and extent of refuse, man-made, and native materials. Perfom basic geotechnical laboratory testing. For short light poles (<~30 feet) no special investigation may be necessary and the subgrade conditions may be extrapolated from available data.	At tower locations excavate 1 boring per structure using truck-mounted drill rig to depths of 20 to 40 feet. Collect California Modified ring samples at 2- to 5- foot intervals. Anticipate a total of about 5 to 10 samples per boring. Assume that no investigation will be necessary at light pole locations.	Determine in situ moisture content, density, gradation, plasticity, compressibility, shear strength parameters, and soil corrosion potential.	Prepare recommendations for structural and civil design.

APPENDIX A

As-built Plans for the Site Remedy

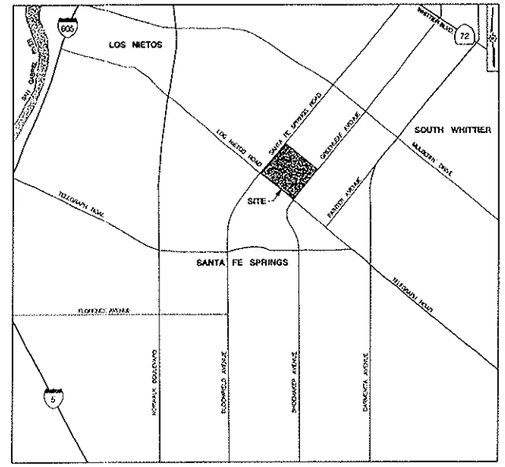
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDY

WASTE DISPOSAL, INC. SUPERFUND SITE SANTA FE SPRINGS, CALIFORNIA



VICINITY MAP

0 8 16 MILES
APPROXIMATE SCALE



SITE LOCATION MAP

0 2,000 4,000 FEET
SCALE

PREPARED FOR:
WASTE DISPOSAL, INC. GROUP (WDIG)

PREPARED BY:
TRC
21 TECHNOLOGY DRIVE
IRVINE, CALIFORNIA 92618
(949) 727-9336

CERTIFICATION

FINAL DESIGN REPORT (REVISION 1.0)
SOILS, SUBSURFACE GAS, AND GROUND WATER REMEDIAL DESIGN

WASTE DISPOSAL, INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

These Drawings for the Waste Disposal, Inc., Superfund Site were prepared by TRC on behalf of the Waste Disposal, Inc. Group (WDIG) in a manner consistent with the level of care and skill ordinarily exercised by professional engineers. Those Drawings were prepared under the technical direction of the undersigned, California Registered Civil Engineers.

Executed at Irvine, California this ____th day of March 2003.

Signature	Signature
Kenneth J. Floom, P.E.	Ian P.G. Hutchison, PhD., P.E.
Registration No. C042099	Registration No. C039319
SEAL:	SEAL:

INDEX OF DRAWINGS

SHEET NO.	FILE NO.	TITLE
1 *	E-30747-SG001	TITLE, INDEX, LEGEND AND GENERAL NOTES
2	E-30747-SG002	EXISTING TOPOGRAPHY – PRE-REMEDIAL CONSTRUCTION
3	E-30747-SG003	EXISTING SURFACE COVER – PRE-REMEDIAL CONSTRUCTION
4	E-30747-SG004	BORING LOCATIONS – PRE-REMEDIAL CONSTRUCTION
5	E-30747-SG004	ISOPACH OF FILL THICKNESS ABOVE WASTE (INCLUDING ANOMOLIES) – PRE-REMEDIAL CONSTRUCT
6	E-30747-SG005	ISOPACH OF FILL THICKNESS ABOVE WASTE (INTERPRETED) – PRE-REMEDIAL CONSTRUCTION
7 *	E-30747-SG018	SURFACE GRADING PLAN (TOP OF COVER)
8	E-30747-SG006	EXISTING EARTH COVER THICKNESS – PRE-REMEDIAL CONSTRUCTION
9 *	E-30747-SG007	COVER TYPE PLAN, PAVEMENT REPAIRS PLAN
10 *	E-30747-SG008	SECTIONS AND DETAILS
11 *	E-30747-SG012	SOIL GAS EXTRACTION, VENTING AND TREATMENT SYSTEM SECTIONS AND DETAILS
12 *	E-30747-SG014	LOCATIONS OF LEACHATE COLLECTION WELLS, BIOVENT WELLS, VAPOR MONITORING WELLS, GROUND WATER MONITORING WELLS AND SETTLEMENT MONUMENTS
13 *	E-30747-SG013	BIOVENT WELL, VAPOR MONITORING WELL AND GROUND WATER MONITORING WELL DETAILS
14 *	E-30747-SG006	LANDSCAPING AND FENCING PLAN
15	E-30747-SG011	HYDROLOGY MAP 100 YEAR STORM – DESIGN
16 *	E-30747-SG027	CONSTRUCTION EROSION CONTROL PLAN
17 *	E-23+03W07-SE01	ELECTRICAL SITE PLAN
18 *	E-23+11W07-SE02	ELECTRICAL SITE DETAILS
19 *	E-23+03W07-SG09	AS-BUILT SUBGRADE TOPOGRAPHY

* AS-BUILT

GENERAL NOTES

1. THE WORK SHOWN BY THIS DOCUMENT IS FOR THE WASTE DISPOSAL, INC. GROUP, HEREAFTER REFERRED TO AS THE WDIG.
2. THE PLANS AND OTHER DOCUMENTS (e.g., SPECIFICATIONS) SHALL GOVERN THE WORK AND SHALL BE CONSIDERED COMPLIMENTARY. ANYTHING FOUND IN THE PLANS AND NOT IN ANOTHER DOCUMENT OR FOUND IN ANOTHER DOCUMENT AND NOT IN THE PLANS SHALL BE CONSIDERED TO BE IN BOTH. IF THERE ARE DISCREPENCIES BETWEEN PLANS AND OTHER COMPLIMENTARY DOCUMENTS THE CONTRACTOR IS REQUIRED TO ASK THE WDIG SITE REPRESENTATIVE FOR CLARIFICATION.
3. CONTRACTOR SHALL, ON DISCOVERING ANY ERROR OR OMISSION IN THE PLANS, IMMEDIATELY BRING IT TO THE ATTENTION OF THE WDIG SITE REPRESENTATIVE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PUBLIC AND PRIVATE PROPERTY ADJACENT TO THE WORK, AND SHALL EXERCISE DUE CAUTION TO AVOID DAMAGE TO SUCH PROPERTY.
5. CONTRACTOR SHALL REPAIR OR REPLACE ALL EXISTING IMPROVEMENTS WITHIN THE CONSTRUCTION AREA THAT ARE NOT DESIGNATED FOR REMOVAL. REPAIRS AND REPLACEMENTS SHALL BE AT LEAST EQUAL TO EXISTING IMPROVEMENTS AND SHALL MATCH THEM IN FINISH AND DIMENSION.
6. CONTRACTOR SHALL KEEP THE WORK SITE CLEAN AND FREE FROM RUBBISH AND DEBRIS THROUGHOUT ALL STAGES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, IF ANY, AND UNTIL FINAL ACCEPTANCE OF THE PROJECT.
7. CONTRACTOR SHALL KEEP A COPY OF THE PLANS AND OTHER DOCUMENTS AT THE WORK SITE.
8. CONTRACTOR SHALL ASCERTAIN THE EXISTENCE OF ANY CONDITIONS AFFECTING THE COST OF THE WORK WHICH WOULD HAVE BEEN DISCLOSED BY REASONABLE EXAMINATION OF THE SITE.
9. EXISTING IMPROVEMENTS VISIBLE AT THE JOB SITE, FOR WHICH NO SPECIFIC DISPOSITION IS MADE ON THE PLANS, BUT WHICH COULD REASONABLY BE ASSUMED TO INTERFERE WITH SATISFACTORY COMPLETION OF THE WORK, SHALL BE BROUGHT TO THE ATTENTION OF THE WDIG SITE REPRESENTATIVE.
10. SOIL MATERIAL REQUIRED FOR THE WORK SHALL BE STOCKPILED AT LOCATIONS SPECIFIED IN THESE PLANS OR AS DESIGNATED BY THE WDIG SITE REPRESENTATIVE.
11. CONTRACTOR SHALL PROVIDE AND MAINTAIN FACILITIES TO PROTECT ALL WORK AND EQUIPMENT WHETHER IN PLACE OR NOT.
12. CONTRACTOR SHALL NOT INTERRUPT THE SERVICE FUNCTION OR DISTURB THE SUPPORT OF ANY UTILITY WITHOUT AUTHORIZATION FROM THE WDIG SITE REPRESENTATIVE.
13. UPON LEARNING OF THE EXISTENCE OF ANY UTILITY OMITTED FROM OR SHOWN INCORRECTLY ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE WDIG SITE REPRESENTATIVE IN WRITING.
14. ALL IN-FIELD MODIFICATIONS REQUIRE APPROVAL BY THE WDIG SITE REPRESENTATIVE PRIOR TO IMPLEMENTATION.
15. NO SUBSTITUTION OF MATERIALS SHALL BE MADE BY CONTRACTOR WITHOUT PRIOR WRITTEN APPROVAL BY DESIGN ENGINEER.
16. COORDINATES SHOWN ON ALL PLAN SHEETS ARE BASED UPON THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 1.
17. BORING LOGS ARE AVAILABLE FOR REVIEW BY CONTRACTOR UPON REQUEST. SUBSURFACE DATA AND INFORMATION FURNISHED IN THESE DRAWINGS ARE INTERPRETATIONS OF INFORMATION GATHERED DURING INVESTIGATIONS MADE AT THE SITE. SUBSURFACE CONDITIONS FOUND AT THE TIME OF THE SUBSURFACE EXPLORATIONS MAY NOT BE THE SAME CONDITIONS WHEN WORK STARTS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS THE CONTRACTOR MAY DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED.

LEGEND

GENERAL LINES

- PROPERTY BOUNDARY
- MAIN TOPIC OF DRAWING
- SUBTOPIC OF DRAWING
- CENTER LINE
- HIDDEN LINE
- FLOW LINE
- EXISTING GRADE
- INDEX CONTOUR LINE
- INTERMEDIATE CONTOUR LINE
- EXISTING INDEX CONTOUR LINE
- EXISTING INTERMEDIATE CONTOUR LINE
- 6' HIGH FENCE
- LIMIT OF WASTE

FILL PATTERNS

- EXISTING SOIL COVER
- VEGETATIVE SOIL LAYER
- EXISTING CONCRETE
- CONCRETE
- EXISTING ASPHALT
- ENGINEERED ASPHALT COVER
- EXISTING BUILDING
- RCRA SUBTITLE C - EQUIVALENT CAP
- PLANTS ESTABLISHED FROM SEED
- SOIL GAS NONCOMPLIANCE AREA
- EXISTING GRADE
- DRAINAGE ROCK
- BURIED WASTE
- AGGREGATE BASE COURSE
- RCRA SUBTITLE D - EQUIVALENT COVER
- ENGINEERED ASPHALT COVER

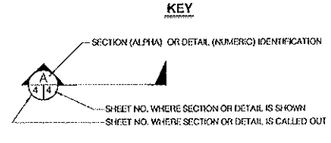
ABBREVIATIONS

AC	ASPHALT CONCRETE	GAL.	GALLON	OC	ON CENTER
ADS	ADVANCED DRAINAGE SYSTEMS, INC.	GB	GRADE BREAK	oz.	OUNCE
APPROX.	APPROXIMATE	HDPE	HIGH DENSITY POLYETHYLENE	%	PERCENT
BGS	BELOW GROUND SURFACE	HP	HIGH POINT	PI	PRESSURE INDICATOR
℄	CENTER LINE	INV.	INVERT	PVC	POLYVINYL CHLORIDE
CY	CUBIC YARD	L	LENGTH	R	RADIUS
DIA	DIAMETER	LF	LINEAL FEET	RED	REDUCING
DIM.	DIMENSION	LACPWD	LOS ANGELES COUNTY PUBLIC WORKS DEPT.	RV	RECREATIONAL VEHICLE
E	EASTING	LP	LOW POINT	RCP	REINFORCED CONCRETE PIPE
EL.	ELEVATION	MH	MANHOLE	SCH.	SCHEDULE
FG	FINISH GRADE	MIN.	MINIMUM	SP	SAMPLE PORT
FIPT	FEMALE IRON PIPE THREAD	MSL	MEAN SEA LEVEL	STD.	STANDARD
FL	FLOW LINE	N	NORTHING	STA.	STATION
FM	FLOW METER	NTS	NOT TO SCALE	TC	TOP OF CURB
FT	FEET	NO.	NUMBER	TG	TOP OF GRATE
CD	CONSTRUCTION DEMOLITION/DEBRIS			TYP.	TYPICAL
				TI	TEMPERATURE INDICATOR

NOTE

HANDWRITING ILLUSTRATES AS-BUILT REVISIONS

KEY



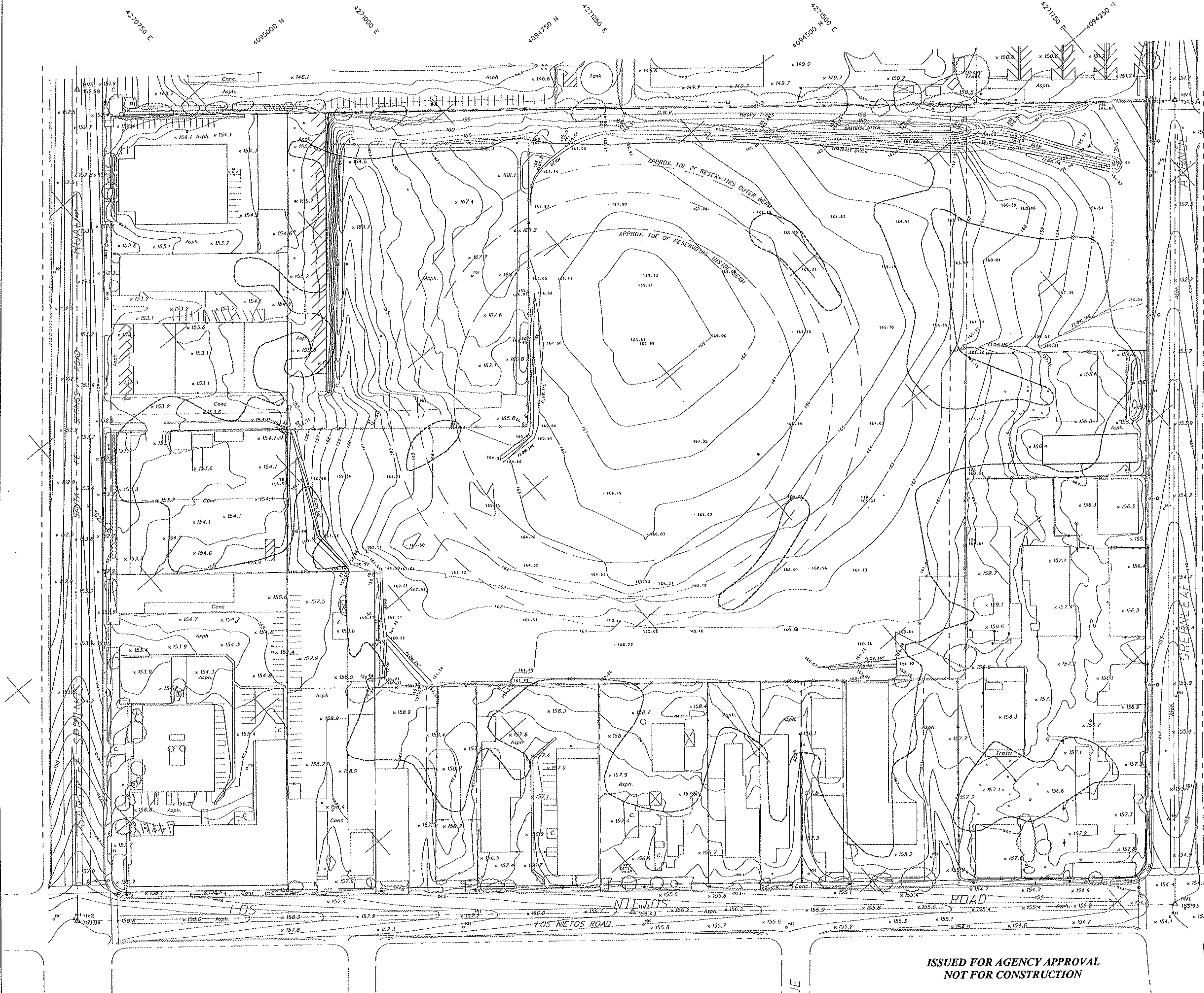
ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
E	3/24/03	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRC	TP
C	1/9/03	ISSUED FOR AGENCY REVIEW	KJK	TP
B	2/8/02	ISSUED FOR 90% REVIEW	JRC	AEB
A	12/20/01	ISSUED FOR 100% PRE-SHUTDOWN REVIEW	JRC	AEB

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS CALIFORNIA

TITLE, INDEX, LEGEND AND GENERAL NOTES

JOB NO.	SCALE	DRAWING NO.
30747	AS NOTED	E-30747-SG001
TRC	PLOTTED	SHEET 1



ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

LEGEND

169	CONTOUR ELEVATION
— — —	LIMIT OF WASTE
× 156.3	SPOT ELEVATIONS
166.49	SPOT ELEVATIONS

REFERENCE: TOPOGRAPHY BY NUNEZ ENGINEERING (DECEMBER 1998)

SCALE: 0 50 100 FEET

KEY	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/13/06	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	KR
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	KR
B	02/04/02	ISSUED FOR 90% REVIEW	JRS	AEB
A	12/02/01	ISSUED FOR "OVER THE SHOULDER" REVIEW REVIEW	JRG	AEB

DRAWN BY: J.R. SANDERS | CHECKED BY: | APPROVED BY:

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS — CALIFORNIA

TITLE: PRE-REMEDIAL CONSTRUCTION EXISTING TOPOGRAPHY

JOB NO.	SCALE	DRAWING NO.
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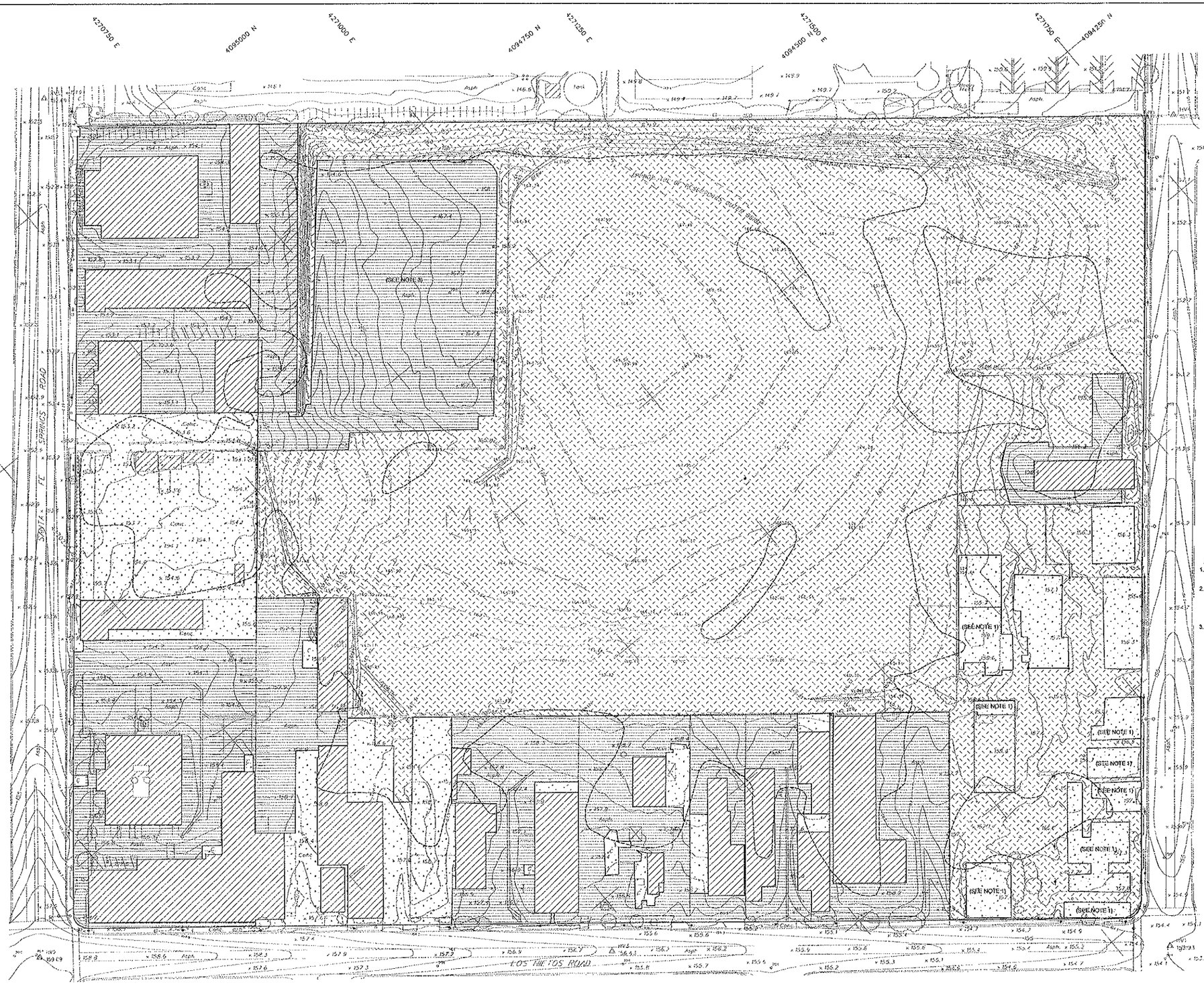
TRC | REVISION: ~~D~~ E | SHEET: 2



E	3/3/06	AS-BUILT		
D	3/25/05	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JTC	KH
C	1/05	ISSUED FOR AGENCY REVIEW	KJH	KH
B	10/04/02	ISSUED FOR 90% REVIEW	JTC	AEB
A	12/06/01	ISSUED FOR UNDER THE SHOULDER REVIEW	JTC	AEB
NO.	DATE	REVISION	DRAWN BY	CHK'D BY

DRAWN BY: J.R. SANDERS DESIGNED BY: APPROVED BY:

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUNDWATER REMEDIAL DESIGN

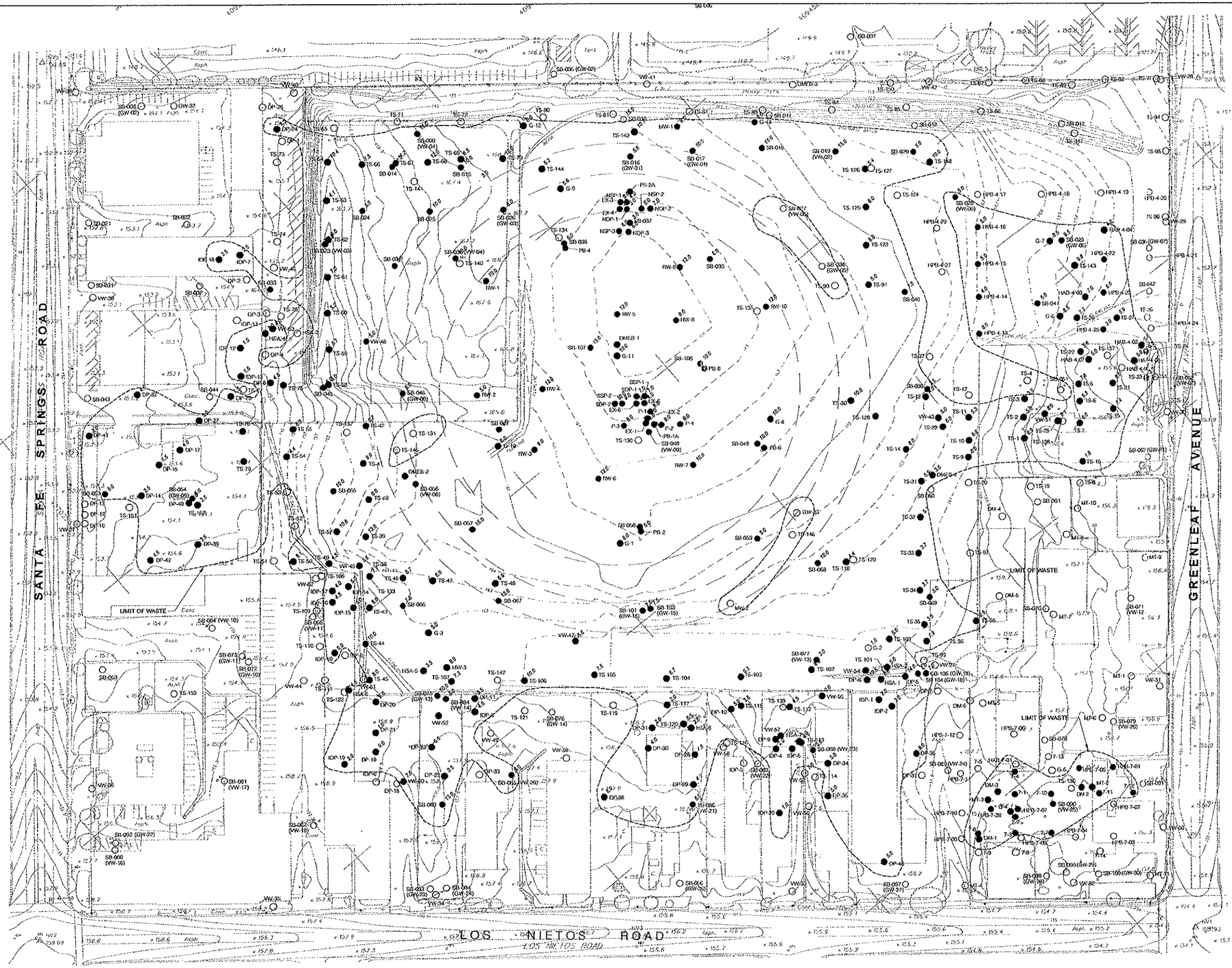
SANTA FE SPRINGS CALIFORNIA

TITLE
PRE-REMEDIAL CONSTRUCTION
EXISTING SURFACE COVER

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG008
TRC		NO. REV. E
		SHEET 3

SEE SHEET 7A FOR INDICATION OF PRE-CONSTRUCTION FEATURES THAT WERE REMOVED

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



LEGEND

- ● TS-24 APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED PRESENCE OF WASTE
- 10.0 THICKNESS OF EXISTING FILL SOIL OVERLYING BURIED WASTE
- ○ SB-042 APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED NO PRESENCE OF WASTE

REGISTERED PROFESSIONAL ENGINEER — 033319 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — KENNETH T. FLORA — No. 041209 — CIVIL — STATE OF CALIFORNIA

0 50 100 FEET

SCALE

E	3/13/02	AS-BUILT		
D	3/05/02	ISSUED FOR 100% REMEDIAL DESIGN / AGENCY APPROVAL	JHS	TP
C	1/9/02	ISSUED FOR AGENCY REVIEW	KJK	TP
B	10/31/01	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	10/09/01	ISSUED FOR TOWER TRC GEOLOGIST REVIEW	AEC	AEB
NO.	DATE	DESCRIPTION	DRAWN BY	CHK'D BY

DRAWN BY: K.J.Kwa CHECKED BY: APPROVED BY:

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS CALIFORNIA

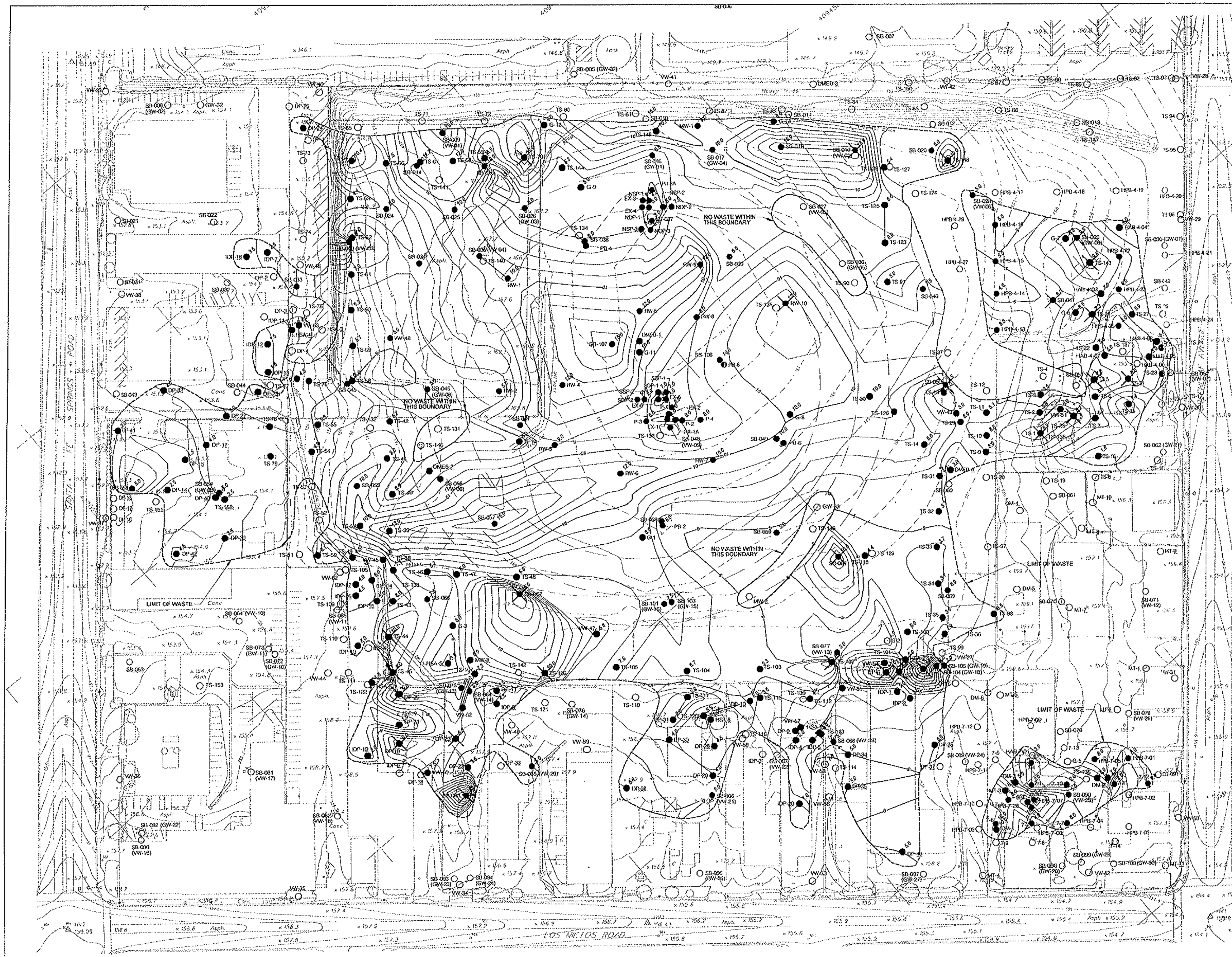
TITLE

PRE-REMEDIAL CONSTRUCTION
BORING LOCATIONS

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG023

TRC — PLAN NO. E — SHEET 4

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



LEGEND

- ● TS-10 — APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED PRESENCE OF WASTE
- 10.0 — THICKNESS OF EXISTING FILL SOIL OVERLYING BURIED WASTE
- ○ SB-042 — APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED NO PRESENCE OF WASTE
- ╳ — DEPTHS TO WASTE PROVIDED BY THESE BORINGS WERE ELIMINATED TO PREPARE INTERPRETED SURFACE SHOWN ON SHEET 6 BECAUSE THEY APPEARED TO BE ISOLATED ANOMALIES.

0 50 100 FEET
SCALE

REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/3/06	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	TP
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	TP
B	12/07/02	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	12/06/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	AEC	AEB

DRAWN BY KJ Kirk | DETAILED BY | APPROVED BY

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

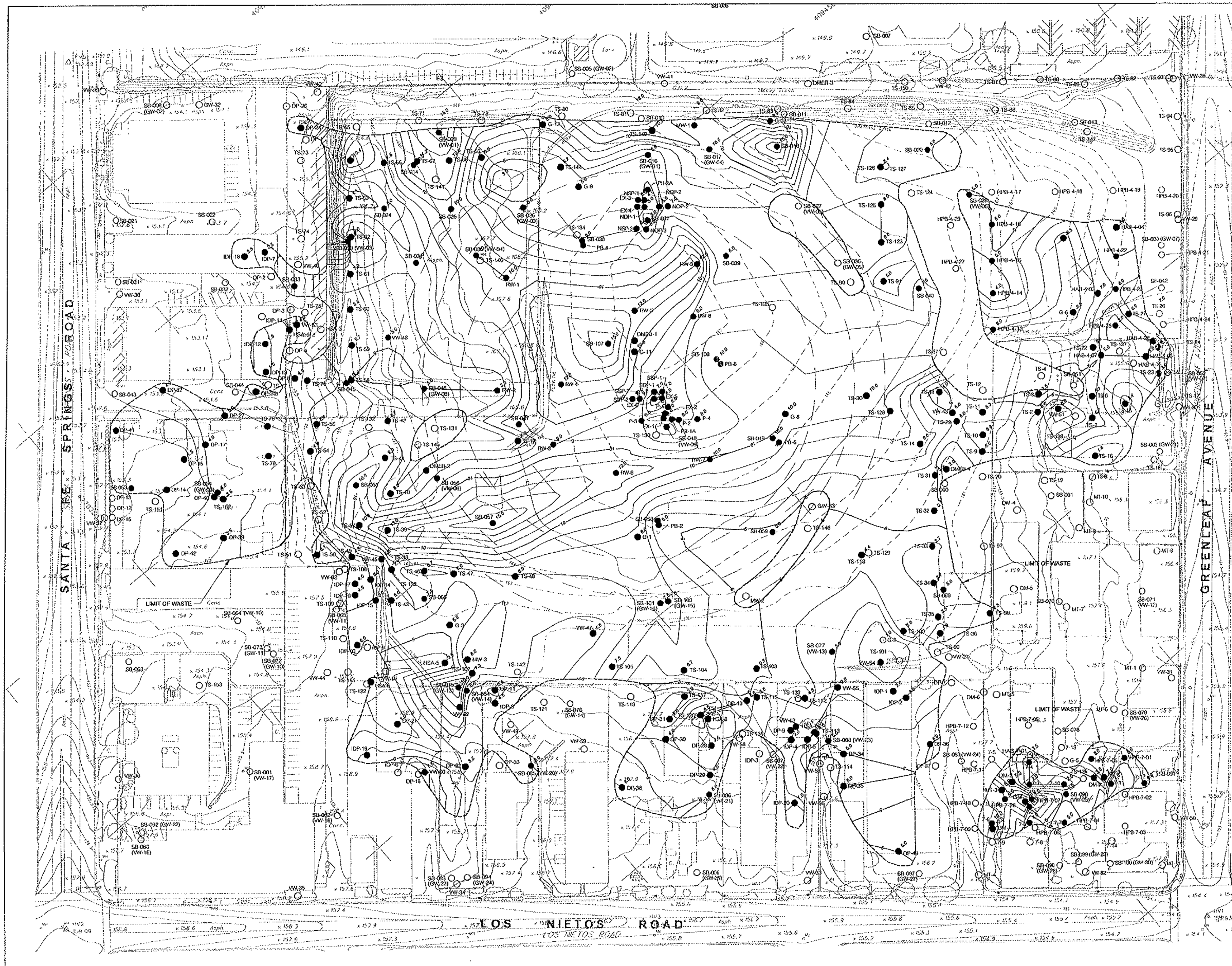
SANTA FE SPRINGS — CALIFORNIA

TITLE: PRE-REMEDIAL CONSTRUCTION
ISOPACH OF FILL THICKNESS ABOVE WASTE
(INCLUDING ANOMALIES)

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG024

TRC | REVISION: ~~D~~ E | SHEET: 5

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



LEGEND

- ● TS-16 APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED PRESENCE OF WASTE
- 10.0 THICKNESS OF EXISTING FILL SOIL OVERLYING BURIED WASTE
- ○ SB-042 APPROXIMATE LOCATION AND NUMBER OF TEST BORING OR MONITORING WELL THAT INDICATED NO PRESENCE OF WASTE

REGISTERED PROFESSIONAL ENGINEER · PETER GEORGE HUTCHISON · C 039319 · CIVIL · STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER · KENNETH J. FLOOM · No. C042099 · CIVIL · STATE OF CALIFORNIA

NOTE

1. THE CONTOURS SHOWN ON THIS PLAN REPRESENT THE APPROXIMATE DEPTH TO THE UPPER SURFACE OF THE EXISTING WASTE AS DETERMINED BY THE EXISTING SURFACE ELEVATIONS AND FIELD MEASURED BORING DEPTHS.
2. ANOMALIES NOTED ON SHEET 5 HAVE BEEN ELIMINATED TO PRODUCE THE INTERPRETED SURFACE PRESENTED IN THIS DRAWING.

0 50 100 FEET

SCALE

REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/31/?6	AS-BUILT		
D	3/2?/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	TP
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	TP
B	02/07/02	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	12/06/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	AEC	AEB

DRAWN BY: KJ Kirk

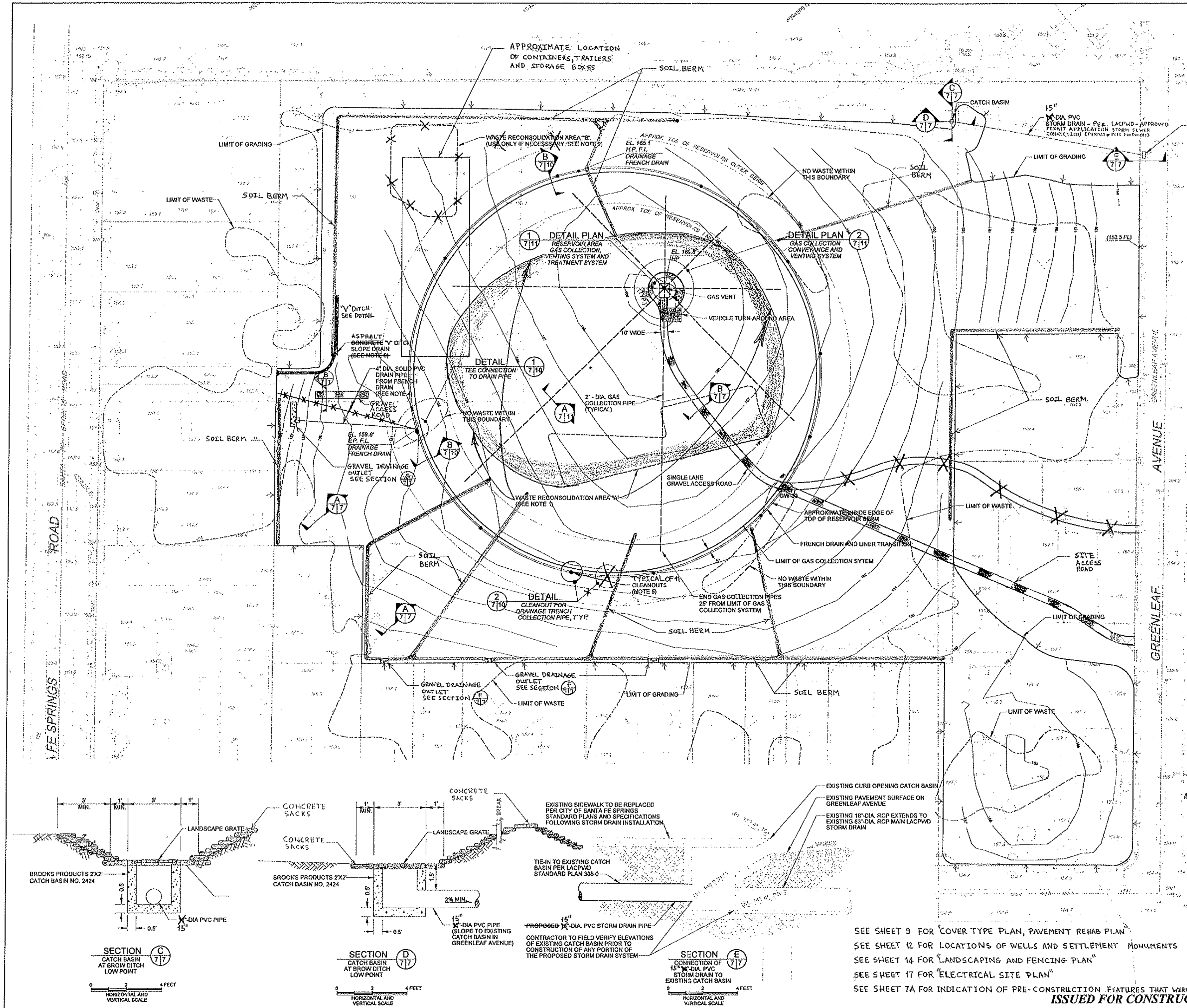
WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS — CALIFORNIA

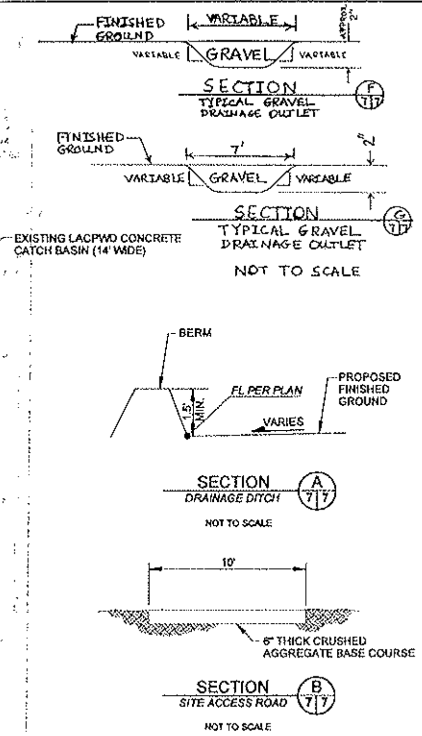
PRE-REMEDIAL CONSTRUCTION
ISOPACH OF FILL THICKNESS ABOVE WASTE (INTERPRETED)

JOB NO.	SCALE	DRAWING NO.	REVISION	SHEET
30747	1"=50'	E-30747-SG025	E	6

TRC

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION


APPROXIMATE LOCATION OF CONTAINERS, TRAILERS AND STORAGE BOXES
SOIL BERM
LIMIT OF GRADING
WASTE RECONSOLIDATION AREA "B" (USE ONLY IF NECESSARY, SEE NOTE 2)
EL. 165.1 H.P. F.L. DRAINAGE FRENCH DRAIN
APPROX. TOE OF RESERVOIR'S OUTER BERM
NO WASTE WITHIN THIS BOUNDARY
CATCH BASIN
15" DIA. PVC STORM DRAIN - PER LACPWD - APPROVED PERMIT APPLICATION STORM SEWER CONNECTION
EXISTING LACPWD CONCRETE CATCH BASIN (14' WIDE)
LIMIT OF WASTE
DETAIL PLAN RESERVOIR AREA GAS COLLECTION, VENTING SYSTEM AND TREATMENT SYSTEM
DETAIL PLAN GAS COLLECTION CONVEYANCE AND VENTING SYSTEM
GAS VENT
VEHICLE TURN-AROUND AREA
10' WIDE
"V" DITCH SEE DETAIL
ASPHALT CONCRETE "V" DITCH SLOPE DRAIN (SEE NOTE 6)
4" DIA. SOLID PVC DRAIN PIPE FROM FRENCH DRAIN (SEE NOTE 4)
GRAVEL ACCESS ROAD
DETAIL TEE CONNECTION TO DRAIN PIPE
2" - DIA. GAS COLLECTION PIPE (TYPICAL)
NO WASTE WITHIN THIS BOUNDARY
EL. 159.6' E.P. F.L. DRAINAGE FRENCH DRAIN
GRAVEL DRAINAGE OUTLET SEE SECTION
WASTE RECONSOLIDATION AREA "A" (SEE NOTE 1)
SINGLE LANE GRAVEL ACCESS ROAD
APPROXIMATE INSIDE EDGE OF TOP OF RESERVOIR BERM
FRENCH DRAIN AND LINER TRANSITION
LIMIT OF GAS COLLECTION SYSTEM
NO WASTE WITHIN THIS BOUNDARY
TYPICAL OF 11 CLEANOUTS (NOTE 5)
END GAS COLLECTION PIPES 25' FROM LIMIT OF GAS COLLECTION SYSTEM
DETAIL CLEANOUT FOR DRAINAGE TRENCH COLLECTION PIPE, TYP.
SITE ACCESS ROAD
GREENLEAF AVENUE
SANTA FE SPRINGS ROAD
GRAVEL DRAINAGE OUTLET SEE SECTION
LIMIT OF WASTE
CONCRETE SACKS
LANDSCAPE GRATE
BROOKS PRODUCTS 2'X2' CATCH BASIN NO. 2424
15" DIA PVC PIPE
SECTION C CATCH BASIN AT BROW DITCH LOW POINT
HORIZONTAL AND VERTICAL SCALE
15" DIA. PVC PIPE (SLOPE TO EXISTING CATCH BASIN IN GREENLEAF AVENUE)
SECTION D CATCH BASIN AT BROW DITCH LOW POINT
EXISTING SIDEWALK TO BE REPLACED PER CITY OF SANTA FE SPRINGS STANDARD PLANS AND SPECIFICATIONS FOLLOWING STORM DRAIN INSTALLATION
TIE-IN TO EXISTING CATCH BASIN PER LACPWD STANDARD PLAN 308-0
PROPOSED 15" DIA. PVC STORM DRAIN PIPE
CONTRACTOR TO FIELD VERIFY ELEVATIONS OF EXISTING CATCH BASIN PRIOR TO CONSTRUCTION OF ANY PORTION OF THE PROPOSED STORM DRAIN SYSTEM
SECTION E CONNECTION OF 15" DIA. PVC STORM DRAIN TO EXISTING CATCH BASIN
EXISTING CURB OPENING CATCH BASIN
EXISTING PAVEMENT SURFACE ON GREENLEAF AVENUE
EXISTING 18"-DIA. RCP EXTENDS TO EXISTING 63"-DIA. RCP MAIN LACPWD STORM DRAIN
SEE SHEET 9 FOR "COVER TYPE PLAN, PAVEMENT REHAB PLAN"
SEE SHEET 12 FOR LOCATIONS OF WELLS AND SETTLEMENT MONUMENTS
SEE SHEET 14 FOR "LANDSCAPING AND FENCING PLAN"
SEE SHEET 17 FOR "ELECTRICAL SITE PLAN"
SEE SHEET 7A FOR INDICATION OF PRE-CONSTRUCTION FEATURES THAT WERE REMOVED
ISSUED FOR CONSTRUCTION


FINISHED GROUND
VARIABLE
GRAVEL
SECTION F TYPICAL GRAVEL DRAINAGE OUTLET
7'
SECTION G TYPICAL GRAVEL DRAINAGE OUTLET
NOT TO SCALE
BERM
FL PER PLAN
PROPOSED FINISHED GROUND
VARIES
SECTION A DRAINAGE DITCH
NOT TO SCALE
10'
6" THICK CRUSHED AGGREGATE BASE COURSE
SECTION B SITE ACCESS ROAD
NOT TO SCALE

—149— CONTOUR ELEVATION

LEGEND

GAS COLLECTION PIPE

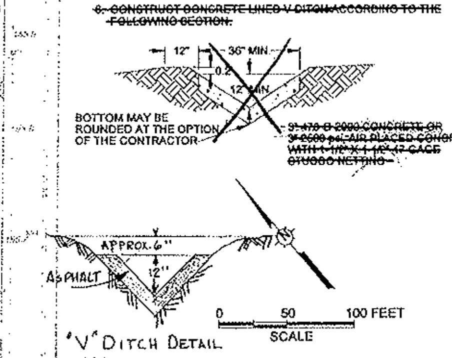
LIMIT OF GRADING

ITEMS REMOVED OR ELIMINATED X

SOIL BERM

NOTES

1. EXCAVATED WASTE RECONSOLIDATION AREA "A". EXCAVATE TO APPROXIMATELY 7 FEET BELOW FINISHED GRADE TO PREPARE AREA FOR WASTE RECONSOLIDATION. MAXIMUM THICKNESS OF RECONSOLIDATION IS 4 FEET.
2. CONTINGENCY EXCAVATED WASTE RECONSOLIDATION AREA "B". USE ONLY IF NECESSARY AND AS DIRECTED BY ENGINEER. EXCAVATE TO APPROXIMATELY 7 FEET BELOW FINISHED GRADE OR TO TOP OF WASTE TO PREPARE AREA FOR WASTE RECONSOLIDATION. MAXIMUM THICKNESS OF RECONSOLIDATED WASTE IS TO WITHIN 3 FEET OF FINSIHED GRADE.
3. TOP OF FOUNDATION LAYER IS A MINIMUM OF 2 FEET BELOW SURFACE GRADING PLAN (TOP OF COVER).
4. LENGTH AND SLOPE OF 4" DRAIN PIPE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE CONSTRUCTION MANAGER.
5. A CLEANOUT SHALL BE PROVIDED FOR THE CAP DRAINAGE TRENCH COLLECTION PIPE A MINIMUM OF EVERY 100 FEET.
6. ~~CONSTRUCT CONCRETE LINED V DITCH ACCORDING TO THE FOLLOWING SECTION.~~



1	3/3/06	AS-BUILT		
0	6/2/03	ISSUED FOR CONSTRUCTION	JRS	KR
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	KR
C	1/9/03	ISSUED FOR AGENCY REVIEW	KJK	KR
B	02/07/02	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	12/06/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	AEC	AEB
REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY

DRAWN BY A.E. CORNEJO

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS — CALIFORNIA

SURFACE GRADING PLAN (TOP OF COVER)

30747	AS NOTED	E-290224020MMP705-02
TRC	~~0~~ 1	7

LIMIT OF GAS COLLECTION SYSTEM

APPROXIMATE INSIDE EDGE OF TOP OF RESERVOIR BERM

FRENCH DRAIN AND LINER TRANSITION

TRAILER

CONTAINER

LOS NIETOS ROAD

LEGEND

—167— CONTOUR ELEVATION

— — — LIMIT OF GRADING

0 50 100 FEET

SCALE

NO	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
B	3/3/06	AS-BUILT	GKM	YNF
A	2/15/05	ISSUED FOR FINAL AS-BUILT	GKM	YNF

DRAWN BY: A.E. CORNEJO CHECKED BY: APPROVED BY:

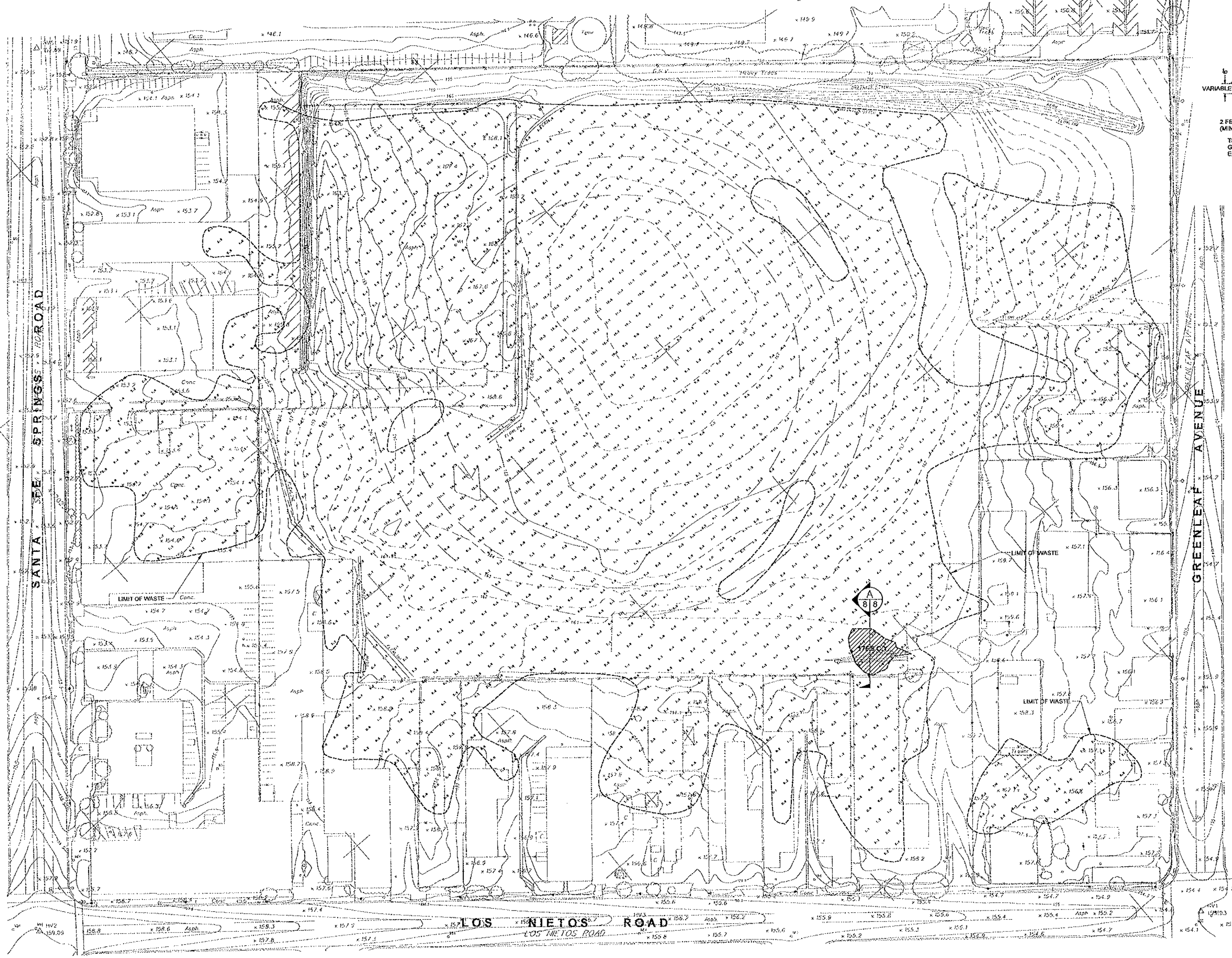
WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

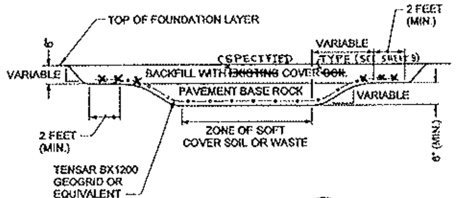
SANTA FE SPRINGS CALIFORNIA

AS-BUILT SUBGRADE
TOPOGRAPHY

JOB NO.	SCALE	DRAWING NO.
29022402	AS NOTED	E-29022402-SG019

TRC | REVISION X8 | SHEET 7A





SECTION A 8/8

TYPICAL CONTINGENCY FOUNDATION LAYER (SEE NOTES 2 AND 3)

NOT TO SCALE

LEGEND

- APPROXIMATE THICKNESS OF EXISTING FILL SOIL OVERLYING BURIED WASTE
- **WASTE EXCAVATION ZONE** (WASTE LOCATED WITHIN THIS AREA SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 2 FEET BELOW THE PROPOSED FINISH GRADE FOR THIS AREA.)
- APPROXIMATE QUANTITY OF WASTE TO BE EXCAVATED FROM EACH AREA.

NOTES

1. THE SPOT FILL THICKNESSES SHOWN ON THIS PLAN REPRESENT THE APPROXIMATE DISTANCE DOWN TO THE UPPER SURFACE OF THE WASTE FROM THE EXISTING SURFACE ELEVATIONS.
2. TO BE USED OVER EXPOSED WASTE OR EXISTING COVER SOIL THAT EXHIBITS BEARING CAPACITY FAILURE DURING CONSTRUCTION (e.g., PUMPING RESULTING FROM CONSTRUCTION LOADS OR INABILITY TO ACHIEVE COVER LAYER COMPACTION).
3. DEPTH OF EXCAVATION AND THICKNESS OF BASE ROCK TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR. IF CONSTRUCTION OF COVER ABOVE CONTINGENCY FOUNDATION LAYER DOES NOT MEET DESIGN AND SPECIFICATIONS CRITERIA, CONTRACTOR SHALL MODIFY CONTINGENCY FOUNDATION LAYER AT THEIR COST.

0 50 100 FEET

SCALE

REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/3/06	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	TP
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	TP
B	02/07/02	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AFB
A	12/06/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	AEC	AFB

DRAWN BY: K.J.Kahl | CHECKED BY: | APPROVED BY:

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN

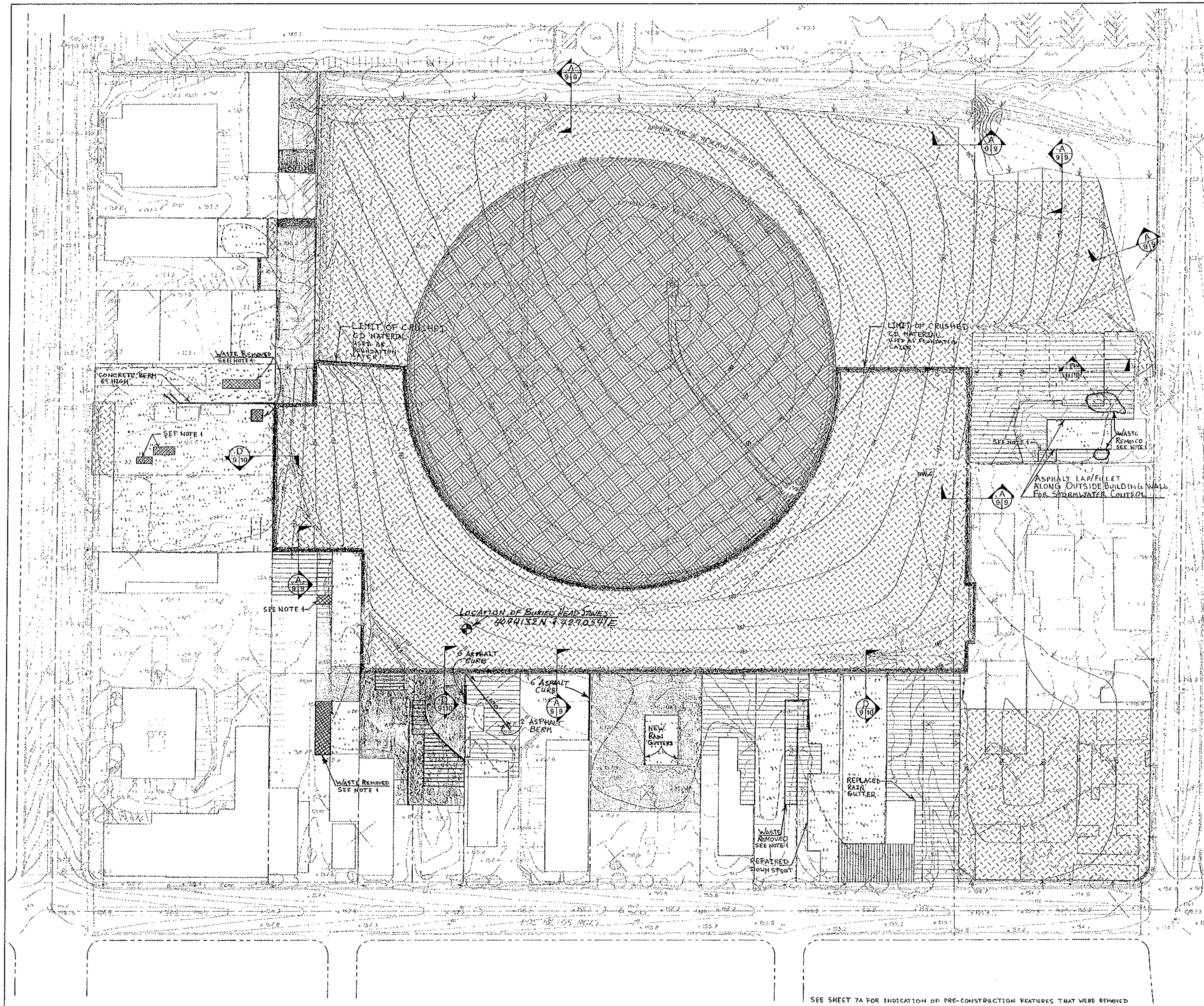
SANTA FE SPRINGS — CALIFORNIA

TITLE: PRE-REMEDIAL CONSTRUCTION
EXISTING EARTH COVER THICKNESS

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG026

TRC	REVISION: ~~D~~ E	SHEET: 8

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

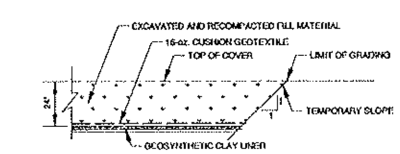


LEGEND

- RCRA SUBTITLE C-EQUIVALENT CAP AREA — DETAIL 4/9|10
- RCRA SUBTITLE D - EQUIVALENT COVER AREA — DETAIL 5/9|10
- REMOVE EXISTING ASPHALT AND REPLACE WITH ENGINEERED ASPHALT COVER — DETAIL 6/9|10
- 2" ASPHALT OVERLAY COVER — DETAIL 6A/9|10
- REMOVE EXISTING CONCRETE AND REPLACE WITH ENGINEERED CONCRETE COVER — DETAIL 7/9|10
- ENGINEERED CONCRETE COVER WITH SEALED CRACKS — DETAIL 7A/9|10
- SEAL ASPHALT AND RESTRIPE
- LIMIT OF CRUSHED CD MATERIAL USED AS FOUNDATION LAYER

LEGEND

- LIMIT OF WASTE
- LIMIT OF GRADING



TYPICAL SECTION A/9|9

TRANSITION FROM COVERED AREA USING RCRA SUBTITLE D - EQUIVALENT COVER TO NON-COVERED SOIL AREAS

NOT TO SCALE

NOTE

1. CONTINGENCY FOUNDATION LAYER INSTALLED - SEE SHEET 8 SECTION A

SCALE: 0 — 50 — 100 FEET

E	3/3/04	AS-BUILT		
0	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRG	AEB
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	KR
B	02/07/02	ISSUED FOR 60% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	12/05/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	AEC	AEB
REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY

DRAWN BY: A.E. CORNEJO

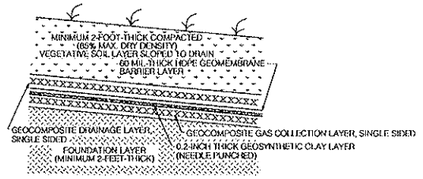
WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS — CALIFORNIA

COVER TYPE PLAN, PAVEMENT REHAB PLAN

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG020

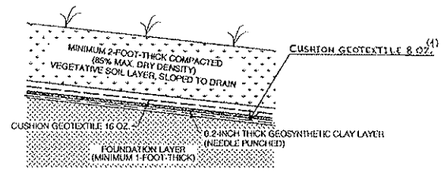
TRC — REVISION: E — SHEET: 9

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



SECTION DETAIL 4 9|10
RCRA SUBTITLE C - EQUIVALENT CAP

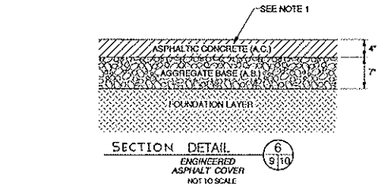
NOT TO SCALE



SECTION DETAIL 5 9|10
RCRA SUBTITLE D - EQUIVALENT COVER

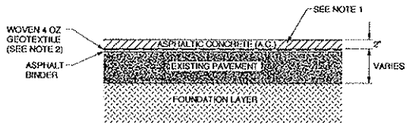
NOT TO SCALE

(1) Used only when crushed C.D. material comprises the foundation layer per Construction Clarification No. 6. ...See sheet 9 for limit of C.D. material. Crushed



SECTION DETAIL 6 9|10
ENGINEERED ASPHALT COVER

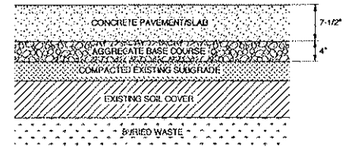
NOT TO SCALE



SECTION DETAIL 6A 9|10
2" ASPHALT OVERLAY COVER

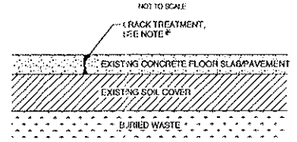
NOT TO SCALE

NOTES:
1. A.C. MIX TO BE DESIGNED AS A HIGH DENSITY, LOW AIR VOIDS MIX, COMPACTED TO 98% THEORETICAL MAXIMUM DENSITY (2% AIR VOIDS MAXIMUM 4%) AND HAVE A HYDRAULIC CONDUCTIVITY OF 1×10^{-5} cm/sec OR LESS.
2. TERMINATE GEOTEXTILE WITHIN 6 INCHES OF BUILDING FOUNDATION. CONTRACTOR SHALL OBTAIN APPROVAL OF GEOTEXTILE BY ENGINEER.



SECTION DETAIL 7 9|10
ENGINEERED CONCRETE COVER

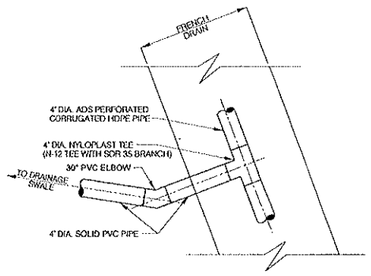
NOT TO SCALE



SECTION DETAIL 7A 9|10
ENGINEERED CONCRETE COVER WITH SEALED CRACKS

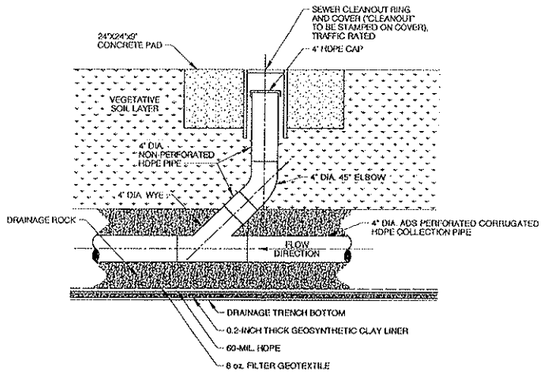
TYPICAL SECTION
NOT TO SCALE

* NOTE
REPAIR OF CRACKS IN EXISTING CONCRETE PAVEMENT SHALL BE PER CONCRETE DESIGN SPECIFICATION 02355, AND DESIGN CLARIFICATION No. 5.



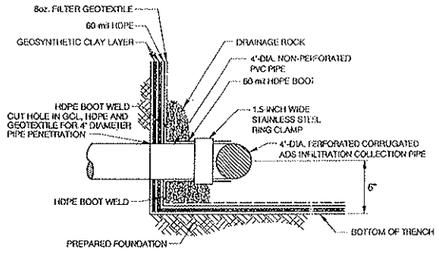
PLAN DETAIL 1 7|10
TRANSITION FROM HDPE TO PVC TEE CONNECTION TO DRAINAGE SWALE

0 1 2 FEET
SCALE



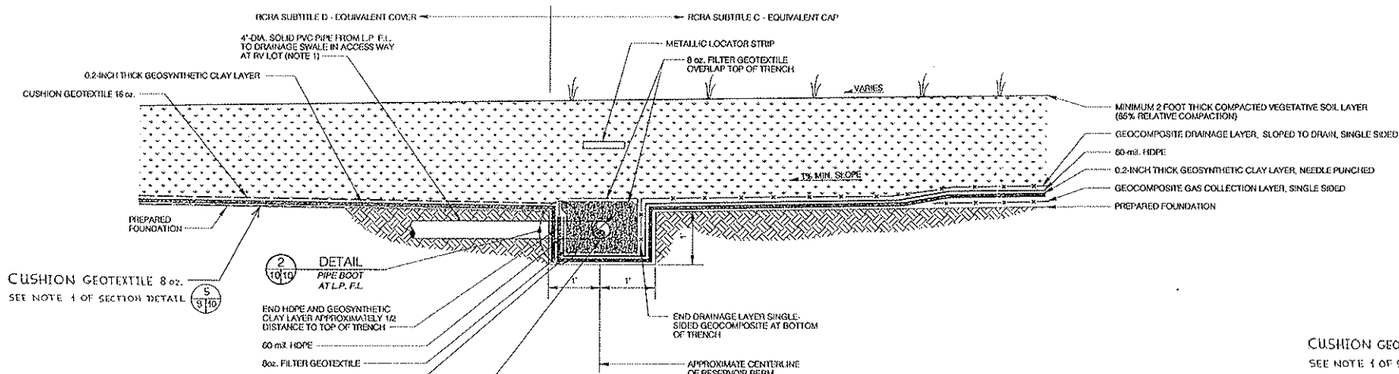
SECTION DETAIL 2 7|10
CLEANOUT FOR DRAINAGE TRENCH COLLECTION PIPE

0 8 16 INCHES
SCALE



SECTION DETAIL 2 10|10
PIPE BOOT

0 0.5 1 FEET
HORIZONTAL AND VERTICAL SCALE

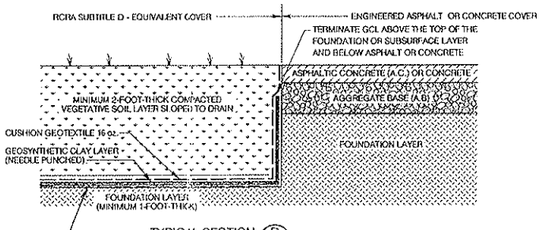


SECTION B 7|10
HIGH POINT AT RESERVOIR CAP DRAINAGE TRENCH

NOTES

1. 4"-DIA. SOLID PIPE IS IN SECTION ONLY AT L.P. F.L. TO DRAINAGE SWALE.
2. CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR TRENCH EXCAVATION.

0 1 2 FEET
HORIZONTAL AND VERTICAL SCALE



CUSHION GEOTEXTILE 8 oz.
SEE NOTE 1 OF SECTION DETAIL 5 9|10

TYPICAL SECTION D 9|10
TRANSITION FROM RCRA SUBTITLE D - EQUIVALENT COVER TO ENGINEERED ASPHALT/CONCRETE COVER

0 1 2 FEET
HORIZONTAL AND VERTICAL SCALE

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

E	3/3/04	AS-BUILT		
D	3/7/03	ISSUED FOR REMEDIAL DESIGN - AGENCY APPROVAL	JVC	MG
C	1/3/03	ISSUED FOR AGENCY REVIEW	JVC	MG
B	2/08/02	ISSUED FOR WORK REVIEW	JVC	ACD
A	1/3/01	ISSUED FOR REVIEW	JVC	ACD
NO.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

DESIGNED BY J.H. SANDERS | DRAWN BY | APPROVED BY

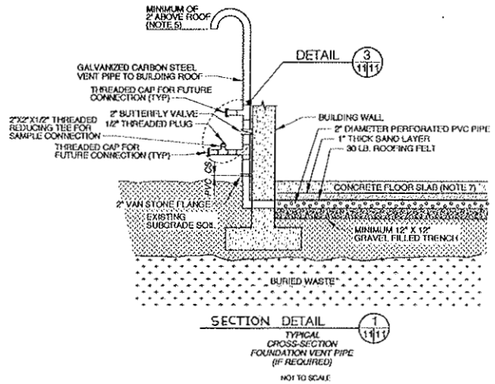
WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS, CALIFORNIA

TITLE: SECTIONS AND DETAILS

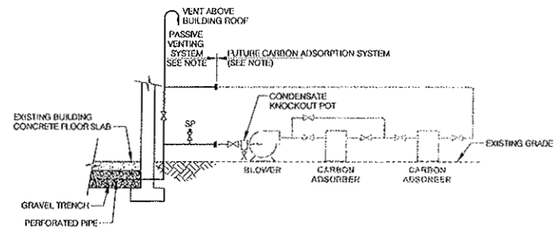
JOB NO.	SCALE	DRAWING NO.
30747	AS NOTED	E-30747-SG005

TRC | REVISION E | SHEET 10



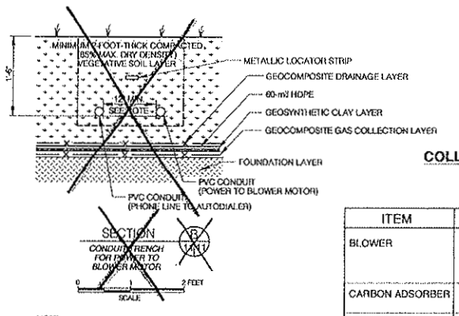
DETAIL 1 NOTES

1. MINIMUM 12"X12" GRAVEL FILLED VENTILATION TRENCHES MUST BE NO FURTHER THAN 50 FEET APART OR 25 FEET FROM THE BUILDING FOUNDATION. VENTILATION TRENCHES MUST BE PROVIDED FOR EACH AREA ISOLATED BY A CONTINUOUS FOOTING.
2. PIPE PERFORATIONS - MINIMUM OF 2 PERCENT OF THE SURFACE AREA OF THE PIPE. PERFORATIONS MUST BE SYMMETRICAL AROUND THE PIPE. ENDS OF THE PIPE ARE TO BE CAPPED.
3. ALL HORIZONTAL VENTILATION PIPES ARE TO BE LOCATED AT THE HIGHEST POINT OF THE VENT TRENCHES.
4. VERTICAL VENTILATION PIPES MUST BE PROVIDED FOR EVERY 400 FEET OF VENTILATION TRENCH OR AT EACH END OF TRENCH, WHICHEVER IS LEAST.
5. ALL VERTICAL VENTILATION PIPES MUST BE TERMINATED AT A MINIMUM OF TWO FEET ABOVE THE HIGHEST POINT ON THE ROOF WITHIN A 10 FOOT RADIUS OF THE VENT PIPE AND AWAY FROM SOURCE(S) OF IGNITION. VENTS SHALL EXHAUST A MINIMUM DISTANCE OF 20 FEET AWAY FROM OPENINGS INTO BUILDINGS (i.e., WINDOWS OR AIR INTAKE VENTS). PIPES ARE TO BE SECURED TO THE EXTERIOR OF BUILDING WALLS AT MAXIMUM OF 5 FOOT VERTICAL INTERVALS.
6. ROOFING FELT SHALL EXTEND A MINIMUM OF 6" ON BOTH SIDES OVER THE WIDTH OF THE TRENCH.
7. MATCH EXISTING SLAB THICKNESS AND REINFORCING WHEN REPLACING CONCRETE AT TRENCHES INSIDE BUILDINGS
8. PROTECT VENTING SYSTEMS WITH BOLLARDS AS REQUIRED. SEE DETAIL 5 ON SHEET 13.



SECTION DETAIL 3 11|11
POTENTIAL GAS COLLECTION AND VENTING SYSTEM FLOW DIAGRAM FOR EXISTING BUILDINGS
NOT TO SCALE

NOTE
PASSIVE VENTING SYSTEM TO BE INSTALLED ONLY IF CONSTITUENTS-OF-CONCERN ARE DETECTED INSIDE BUILDINGS ABOVE THE INDOOR AIR THRESHOLD LEVELS (SEE AMENDED RECORD OF DECISION). CARBON ADSORPTION SYSTEM TO BE INSTALLED ONLY IF EXTRACTED GAS EXCEEDS ONE POUND PER DAY OF VOLATILE ORGANIC COMPOUNDS.



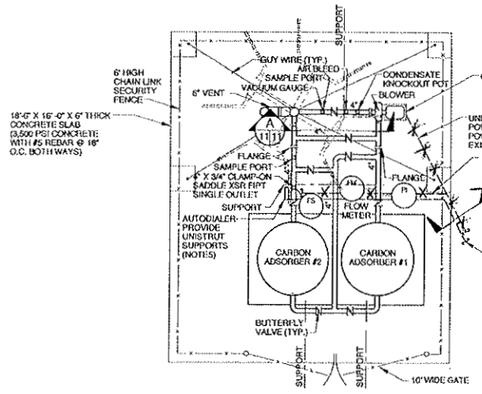
NOTE
A MINIMUM 12" SEPARATION MUST BE MAINTAINED BETWEEN ELECTRICAL CONDUIT AND COMMUNICATIONS CONDUIT.

SEE ELECTRICAL SITE DETAILS SHEET 18

RESERVOIR AREA GAS COLLECTION AND VENTING SYSTEM

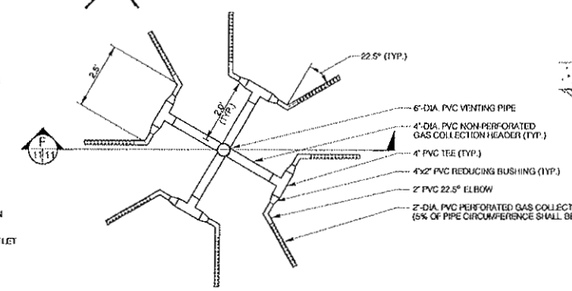
MATERIALS LIST

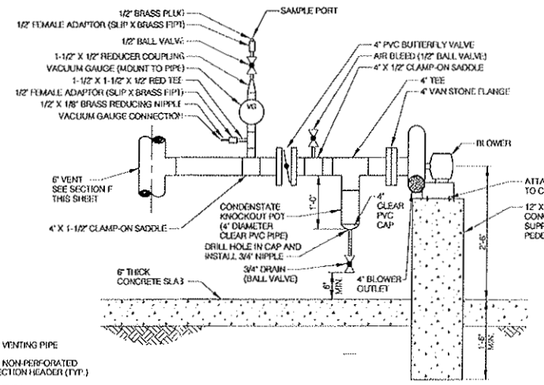
ITEM	DESCRIPTION	QTY
BLOWER	MOMASTER-CARR 1954K999 CAST ALUMINUM HIGH PRESSURE BLOWER, 1/3 HP, ODP MOTOR, 115/230 VOLT, 3450 RPM, 225CFM AT 1" STATIC PRESSURE WITH ANSI FLANGES OR EQUAL	1
CARBON ADSORBER	CARBTROL VAPOR PHASE ADSORBER MODEL G-4 OR EQUAL	2
VACUUM GAUGE	DWYER MAGNAHELIC #2010, RANGE 0-10" H_2O WITH A-610 PIPE MOUNTING KIT OR EQUAL	1
BUTTERFLY VALVE	HAYWARD 4" PVC OR EQUAL	6
BUTTERFLY VALVE	HAYWARD 6" PVC GEAR OPERATED OR EQUAL	1
BALL VALVE	SPEARS 1/2" TRUE UNION PVC OR EQUAL	2
BALL VALVE	SPEARS 3/4" TRUE UNION PVC OR EQUAL	1
FLOW METER	DWYER MODEL 166-6-CF PITOT TUBE AND DWYER SERIES 475 Mk III HANDHELD DIGITAL MANOMETER	1
PRESSURE GAUGE	RANGE 0-60 psi	1
FLOW SWITCH	OMEGA MODEL NO. FST-323 OR EQUAL	1
AUTO DIALER	OMEGA OMA-GUARDIT AUTOMATIC ALARM DIALER OR EQUAL	1



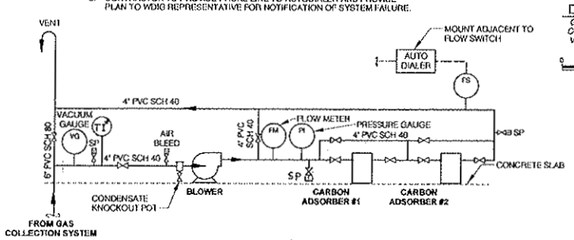
DETAIL PLAN 1 7|11
RESERVOIR AREA GAS COLLECTION, VENTING AND TREATMENT SYSTEM
0 3 6 FEET SCALE

NOTES
1. PIPE ROUTING MAY REQUIRE MODIFICATION DEPENDING ON LOCATION AND ELEVATION OF CONNECTIONS AT THE CARBON ADSORBERS.
2. BREAKOUT CONNECTIONS MUST BE INSTALLED AT THE INLET AND OUTLET OF THE CARBON ADSORBERS TO FACILITATE CHANGEOUT.
3. SEE DETAIL 4 11|11 FOR FLOW DIAGRAM.
4. SEE MATERIALS LIST ON THIS SHEET.
5. CONTRACTOR TO PROVIDE PHONE LINE TO AUTODIALER AND PROVIDE PLAN TO WOAD REPRESENTATIVE FOR NOTIFICATION OF SYSTEM FAILURE.



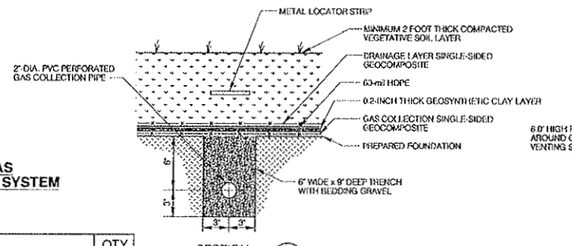


SECTION A 11|11
BLOWER INLET PIPING, INSTRUMENTATION AND FOUNDATION
0 1 2 FEET SCALE

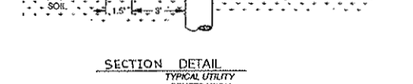


* TEMPERATURE INDICATOR (TI) DETAIL 4 11|11
RESERVOIR AREA GAS COLLECTION AND VENTING SYSTEM FLOW DIAGRAM
NOT TO SCALE

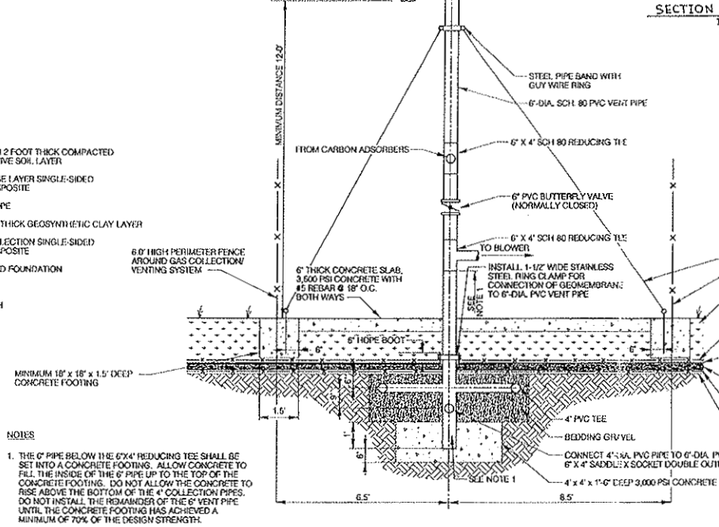
DETAIL PLAN 2 7|11
GAS COLLECTION CONVEYANCE AND VENTING SYSTEM
0 2 4 FEET HORIZONTAL AND VERTICAL SCALE



SECTION A 7|11
GAS COLLECTION PIPE
NOT TO SCALE



SECTION DETAIL
TYPICAL UTILITY PENETRATION TREATMENT
NOT TO SCALE



NOTES
1. THE 6" PIPE BELOW THE 6"X4" REDUCING TEE SHALL BE SET INTO A CONCRETE FOOTING. ALLOW CONCRETE TO FILL THE INSIDE OF THE 6" PIPE UP TO THE TOP OF THE CONCRETE FOOTING. DO NOT ALLOW THE CONCRETE TO RISE ABOVE THE BOTTOM OF THE 4" COLLECTION PIPES. DO NOT INSTALL THE REMAINDER OF THE 6" VENT PIPE UNTIL THE CONCRETE FOOTING HAS ACHIEVED A MINIMUM OF 70% OF THE DESIGN STRENGTH.
2. SECTION F INCLUDES SOME ABOVEGROUND ITEMS (i.e., VENT PIPE, GUY WIRES, FENCING) ALTHOUGH THEY ARE NOT INDICATED IN DETAIL PLAN 2.

SECTION F 11|11
GAS COLLECTION CONVEYANCE AND VENTING SYSTEM (NOTE 2)
0 2 4 FEET HORIZONTAL AND VERTICAL SCALE

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

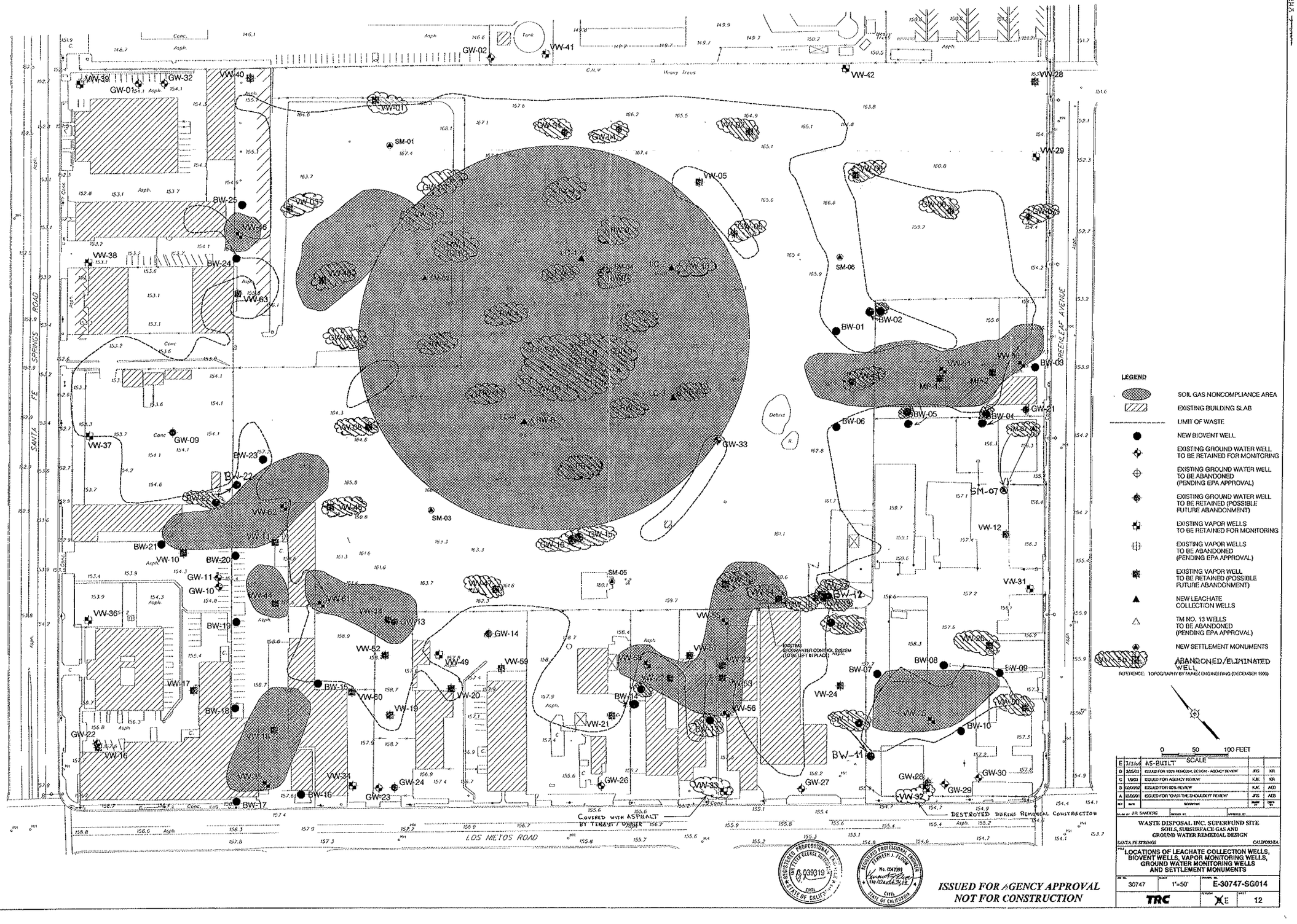
E	3/31/06	AS-BUILT		
D	3/05/05	ISSUED FOR 90% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	MG
C	1/5/05	ISSUED FOR AGENCY REVIEW	JRS	MG
B	12/09/04	ISSUED FOR 60% REVIEW	JRS	ACB
A	12/06/04	ISSUED FOR 100% THE SHOULDER REVIEW	JRS	ACB
REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

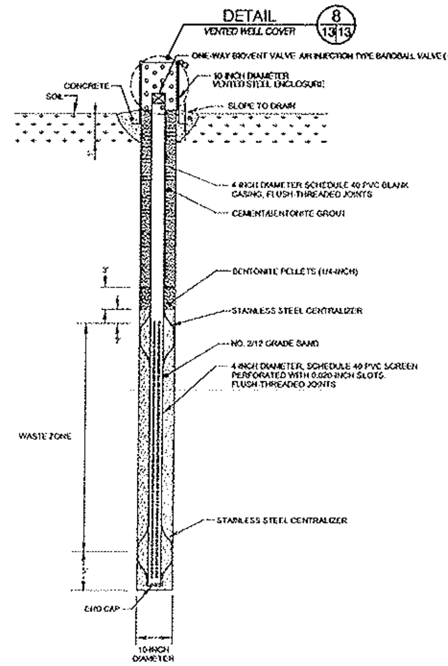
DESIGNED BY: J.R. SANDERS DRAWN BY: M. GARAMONE APPROVED BY:

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS CALIFORNIA

SOIL GAS EXTRACTION, VENTING AND TREATMENT SYSTEM SECTIONS AND DETAILS

JOB NO.	SCALE	DRAWING NO.
30747	AS NOTED	E-30747-SG012
TRC	REVISION E	SHEET 11

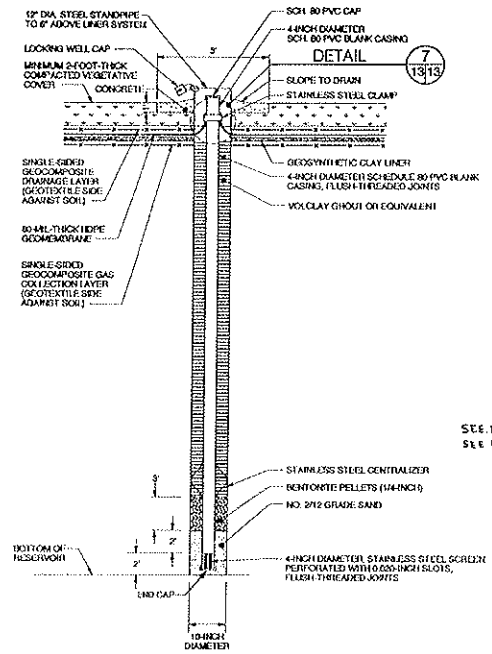

SANTA FE SPRINGS ROAD
GREENLEAF AVENUE
LOS NIETOS ROAD
GW-02
VW-41
VW-42
VW-28
VW-39
GW-32
GW-01
VW-40
VW-01
SM-01
VW-29
VW-05
BW-25
VW-46
VW-38
BW-24
VW-63
SM-06
BW-01
BW-02
BW-03
VW-37
GW-09
BW-23
BW-22
GW-33
SM-03
SM-07
VW-12
BW-21
VW-10
BW-20
GW-11
GW-10
SM-05
VW-31
VW-36
BW-19
GW-13
GW-14
VW-52
VW-49
VW-59
BW-12
VW-17
BW-15
VW-60
VW-20
VW-19
BW-14
VW-56
BW-18
VW-21
BW-07
BW-08
BW-09
VW-24
GW-22
VW-16
BW-10
BW-11
BW-16
BW-17
VW-24
GW-24
GW-23
GW-26
GW-27
GW-28
GW-30
GW-29
VW-32
Debris
BW-06
BW-05
BW-04
GW-21
MW-1
MW-2
Covered with Asphalt by Tenant / Owner
Destroyed During Remedial Construction
EXISTING STORMWATER CONTROL SYSTEM (TO BE LEFT IN PLACE)
LEGEND
SOIL GAS NONCOMPLIANCE AREA
EXISTING BUILDING SLAB
LIMIT OF WASTE
NEW BIOVENT WELL
EXISTING GROUND WATER WELL TO BE RETAINED FOR MONITORING
EXISTING GROUND WATER WELL TO BE ABANDONED (PENDING EPA APPROVAL)
EXISTING GROUND WATER WELL TO BE RETAINED (POSSIBLE FUTURE ABANDONMENT)
EXISTING VAPOR WELLS TO BE RETAINED FOR MONITORING
EXISTING VAPOR WELLS TO BE ABANDONED (PENDING EPA APPROVAL)
EXISTING VAPOR WELL TO BE RETAINED (POSSIBLE FUTURE ABANDONMENT)
NEW LEACHATE COLLECTION WELLS
TM NO. 13 WELLS TO BE ABANDONED (PENDING EPA APPROVAL)
NEW SETTLEMENT MONUMENTS
ABANDONED/ELIMINATED WELL
REFERENCE: TOPOGRAPHY BY RAMEZ ENGINEERING (DECEMBER 1998)
0 50 100 FEET
SCALE
E 3/3/06 AS-BUILT JRS KR
D 3/25/03 ISSUED FOR 100% REMEDIAL DESIGN - AGENCY REVIEW JRS KR
C 1/9/03 ISSUED FOR AGENCY REVIEW KJK KR
B 12/20/02 ISSUED FOR 60% REVIEW KJK AED
A 12/05/01 ISSUED FOR OVER THE SHOULDER REVIEW JRS AEB
WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS CALIFORNIA
LOCATIONS OF LEACHATE COLLECTION WELLS, BIOVENT WELLS, VAPOR MONITORING WELLS, GROUND WATER MONITORING WELLS AND SETTLEMENT MONUMENTS
30747
1"=50'
E-30747-SG014
TRC
E
12
ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



SECTION DETAIL 1 13/13
BIOVENT WELL CONSTRUCTION DIAGRAM

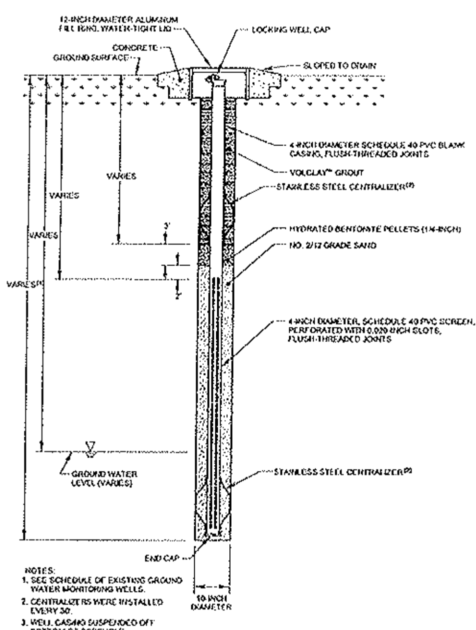
NOT TO SCALE

NOTE: (1) SEE BIOVENT WELL SCHEDULE FOR ESTIMATED WELL DEPTH AND SCREENED INTERVAL.
(2) THREE BOLLARDS (SEE DETAIL 5) SHALL BE INSTALLED AT EQUAL SPACING AROUND EACH BIOVENT WELL UNLESS OTHERWISE PROTECTED AS DETERMINED BY THE ENGINEER.



SECTION DETAIL 2 13/13
LEACHATE MONITORING/CONTROL WELL CONSTRUCTION DIAGRAM

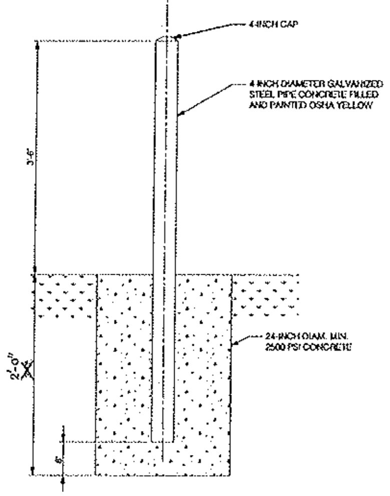
NOT TO SCALE



NOTES:
1. SEE SCHEDULE OF EXISTING GROUND WATER MONITORING WELLS.
2. CENTRALIZERS WERE INSTALLED EVERY 50'.
3. WELL CASING SUSPENDED OFF BOTTOM OF BOREHOLE.

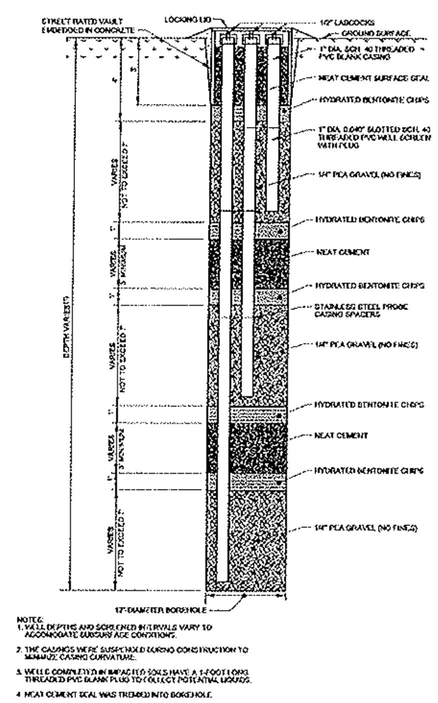
SECTION DETAIL 3 13/13
TYPICAL EXISTING GROUNDWATER MONITORING WELL CONSTRUCTION DIAGRAM

NOT TO SCALE



SECTION DETAIL 5 13/13
TYPICAL BOLLARD

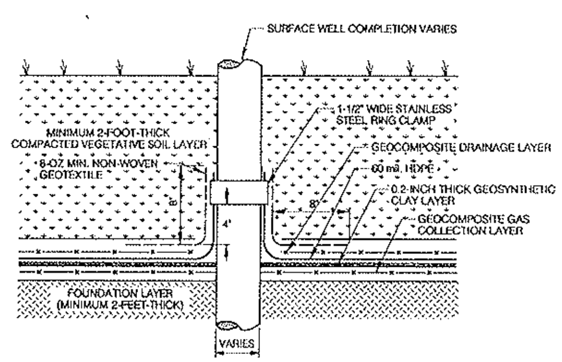
NOT TO SCALE



NOTES:
1. WELL DEPTHS AND SCREENED INTERVALS VARY TO ACCOMMODATE SUBSURFACE CONDITIONS.
2. THE CASINGS WERE SUSPENDED DURING CONSTRUCTION TO MINIMIZE CASING CURVATURE.
3. WELLS COMPLETED IN IMPACTED SOILS HAVE A 5-FOOT LONG THREADED PVC BLANK PLUG TO COLLECT POTENTIAL LIQUIDS.
4. NEAT CEMENT SEAL WAS TREMIED INTO BOREHOLE.

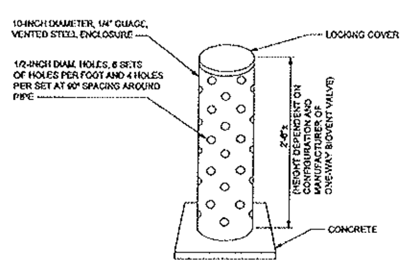
SECTION DETAIL 4 13/13
TYPICAL EXISTING VAPOR WELL CONSTRUCTION DIAGRAM

NOT TO SCALE



SECTION DETAIL 7 13/13
TYPICAL WELL PENETRATION DETAIL THRU RCRA SUBTITLE C EQUIVALENT CAP

NOT TO SCALE



DETAIL 8 13/13
VENTED WELL COVER

NOT TO SCALE

NOTE: INSTALL BOLLARDS FOR PROTECTION OF VENTED COVER AS REQUIRED AND APPROVED BY THE ENGINEER.

SCHEDULE OF EXISTING SOIL VAPOR MONITORING WELLS TO BE RETAINED FOR MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NUMBER	TOP OF CASING ELEVATION (ft above msl)	WELL DEPTH (ft)	SCREENED INTERVAL (ft) AND MATERIAL TYPE(1)								WELL TYPE
			Shallow Probes	Material Type	Intermediate Probes	Material Type	Deep Probes	Material Type	All Probes	Material Type	
VW-35	(2)	38	5-10	F	--	--	33-38	N	--	--	Perimeter
VW-36	(2)	30	5-10	F	--	--	25-30	N	--	--	Perimeter
VW-37	(2)	30	7-10	F	--	--	25-30	N	--	--	Perimeter
VW-38	(2)	35	5-10	F	--	--	29-34	N	--	--	Perimeter
VW-39	(2)	30	5-7	F	--	--	25-30	N	--	--	Perimeter
VW-46	(2)	30	4.5-6.5	F	12-15	N	22-27	N	--	--	Building Perimeter
VW-62	(2)	31	5-10	N	15-18	N	25-30	N	--	--	Building Perimeter
VW-41	(2)	20	5-7	F	--	--	15-20	N	--	--	Perimeter
VW-42	(2)	30	5-10	F	--	--	25-30	N	--	--	Perimeter
VW-29	(2)	35	7-10	F	18-23	N	30-35	N	--	--	Perimeter
VW-30	(2)	35	5-7	F	18-23	N	30-35	N	--	--	Perimeter
VW-51	(2)	35	5-8	F	13-18	W	25-30	N	--	--	Building Perimeter
VW-31	(3)	35	5-10	F	--	--	25-30	N	--	--	Perimeter
VW-25	156.7	35	--	--	--	--	--	--	5-35	A	Interior
VW-32	(2)	35	4.5-7.5	F	13-16	N	30-35	N	--	--	Perimeter
VW-33	(2)	35	5-10	F	--	--	30-35	N	--	--	Perimeter
VW-34	(2)	45	5-10	F	18-23	N	35-40	N	--	--	Perimeter
VW-40	(2)	35	5-10	F	15-18	F	25-30	N	--	--	Building Perimeter
VW-55	(2)	31	5-10	F,W	15-18	N	25-30	N	--	--	Building Perimeter
VW-56	(2)	31	5-8	F	15-20	N	25-30	N	--	--	Building Perimeter
VW-58	(2)	31	5-8	F	14-19	N	24-29	N	--	--	Building Perimeter
VW-61	(2)	34	5-9	F	14-18	N	25-30	N	--	--	Building Perimeter

SEE NOTE (3) BELOW → VW-32
SEE NOTE (4) BELOW → VW-33

(1) Material type: F = Fill Material. W = Waste Material. N = Native Material. A = All Material (fill, waste and native).
(2) Top of casing elevation not surveyed.
-- = Not Applicable.

(3)...DESTROYED DURING REMEDIAL CONSTRUCTION.
(4)...COVERED WITH ASPHALT BY TENANT/OWNER.

AS-BUILT
SCHEDULE OF BIOVENT WELLS ~~TO BE CONSTRUCTED~~

WELL NUMBER	SURFACE ELEVATION, ft msl (approximate)	TOP OF SCREEN(1) ELEVATION (ft, msl)	BOTTOM OF WELL SCREEN(2) ELEVATION (ft, msl)
BW-1	162.8	156.0	146.0
BW-2	161.5	155.5	145.5
BW-3	155.5	149.5	139.5
BW-4	156.4	150.5	142.0
BW-5	158.7	152.7	132.7
BW-6	161.7	155.7	140.7
BW-7	157.7	151.7	132.7
BW-8	157.5	149.5	134.5
BW-9	156.8	150.8	139.8
BW-10	156.8	150.8	131.8
BW-11	157.0	151.0	136.0
BW-12	158.6	152.6	138.0
~~BW-13~~	~~158.0~~	~~150.0~~	~~145.0~~
BW-14	158.5	152.5	133.5
BW-15	158.8	152.8	143.8
BW-16	157.5	151.5	147.5(3)
BW-17	158.2	152.2	148.2(3)
BW-18	158.5	152.5	148.5(3)
BW-19	158.0	152.0	148.0(3)
BW-20	157.5	151.5	133.5
BW-21	154.7	148.7	142.7
BW-22	155.5	149.5	140.5
BW-23	158.0	152.0	135.0
BW-24	155.5	149.5	130.5
BW-25	155.2	149.2	132.7

ELIMINATED Due to Location Restriction

(1) MINIMUM OF 6 FT. FROM GROUND SURFACE TO ALLOW PLACEMENT OF SAND FILTER, BENTONITE SEAL, AND 1 FT. OF CEMENT GROUT TO BE PLACED ABOVE TOP OF SCREEN
(2) ELEVATION TO BOTTOM OF WELL SCREEN IS A MAXIMUM. WELL LENGTH MAY BE INCREASED BY A NOMINAL AMOUNT TO ACCOMMODATE CASING LENGTH.
(3) SCREEN LENGTH OF 4 FT. USED. NO WASTE WITHIN 50 FT. OF THIS LOCATION

SCHEDULE OF EXISTING GROUND WATER MONITORING WELLS TO BE RETAINED FOR MONITORING WASTE DISPOSAL, INC. SUPERFUND SITE

WELL NUMBER	TOP OF WELL CASING ELEVATION (ft above msl)	WELL DEPTH	WELL SCREEN (ft bgs)	WELL TYPE
GW - 01	153.5	Shallow	38 - 58	Background Well
GW - 02	149.3	Shallow	33 - 53	Background Well
GW - 10	154.7	Shallow	38 - 58	Near-Source Detection Well
GW - 11	154.7	Deep	118 - 128	Background Well
GW - 22	156.7	Shallow	58 - 78	Point-of-Compliance Well
GW - 23	157.0	Shallow	43 - 63	Point-of-Compliance Well
GW - 26	156.0	Shallow	44 - 64	Point-of-Compliance Well
GW - 27	157.0	Shallow	43 - 63	Verification or Guard Well
GW - 29	157.4	Shallow	44 - 64	Verification or Guard Well
GW - 30	156.6	Deep	74 - 94	Verification or Guard Well
GW - 32	153.6	Deep	115-125	Background Well
GW - 33	163.7	Shallow	35-60	Near-Source Detection Well

REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/3/06	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRS	KR
C	1/3/03	ISSUED FOR AGENCY REVIEW	JRS	KR
B	2/8/02	ISSUED FOR 90% REVIEW	JRS	AEB
A	12/05/01	ISSUED FOR "OVER THE SHOULDER" REVIEW	JRS	AEB

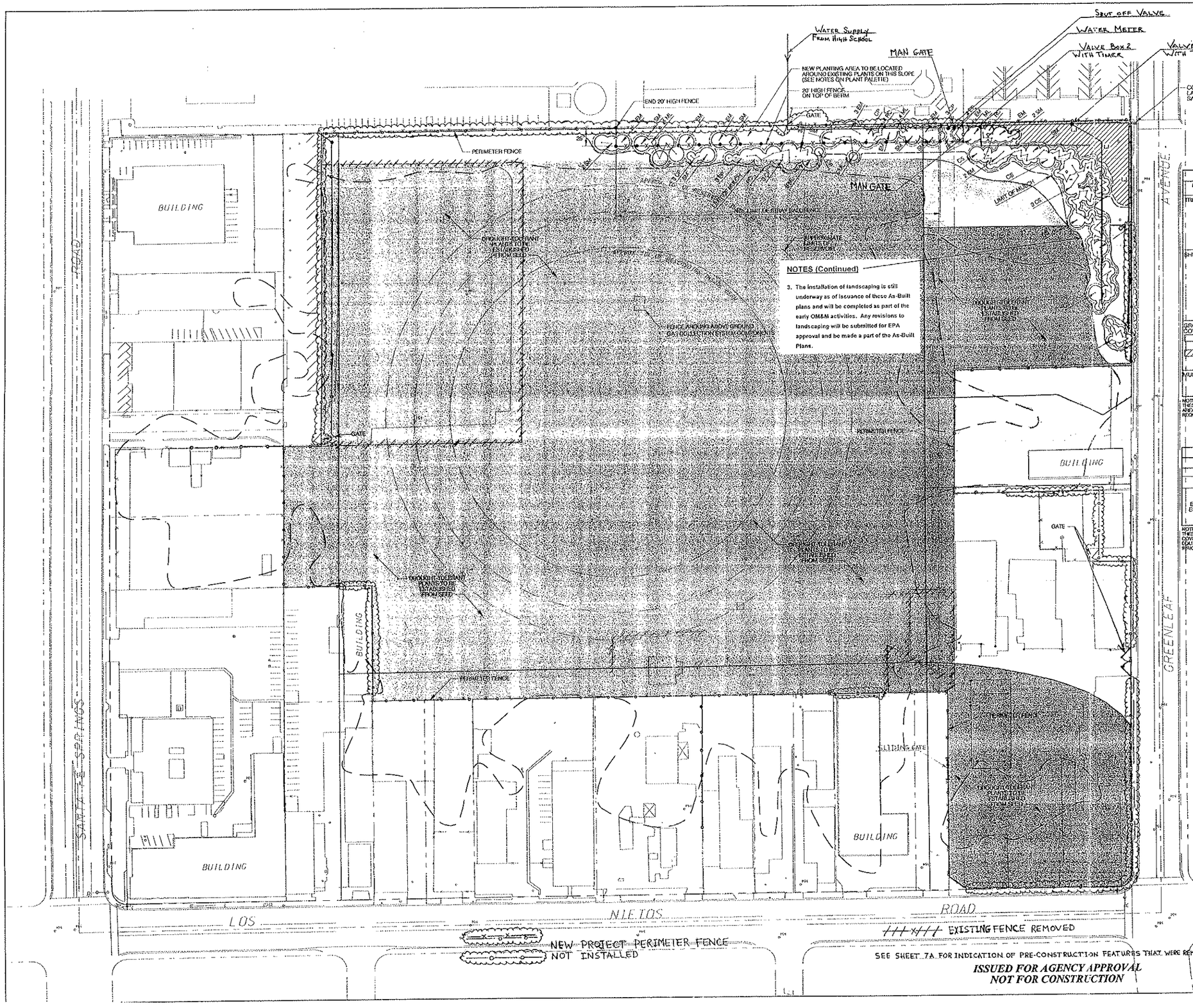
WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUNDWATER REMEDIAL DESIGN
SANTA FE SPRINGS CALIFORNIA

BIOVENT WELL, VAPOR MONITORING WELL AND GROUND WATER MONITORING WELL DETAILS

JOB NO.	SCALE	DRAWING NO.
30747	AS NOTED	E-30747-SG013

TRC | REVISION: ~~D~~ E | SHEET: 13

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



PLANT PALETTE (SEE NOTE 1 AND NOTE 3)

KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
TREES: CS	CERATONIA SILIQUA	CAROB TREE	15 GAL.	VARIABLE	8
EM	EUCALYPTUS MICROTHECA	COOLIBAH TREE	15 GAL.	VARIABLE	10
SM	SCHINUS MOLLE	CALIFORNIA PEPPER TREE	15 GAL.	VARIABLE	13
SHRUBS: CP	COTONEASTER PANNOSY	RED CLUSTERBERRY	5 GAL.	VARIABLE	11
EP	ELAEAGNUS PUNGENS	SILVERBERRY	5 GAL.	VARIABLE	9
ML	MYOPORUM LAETUM	(NO COMMON NAME)	5 GAL.	VARIABLE	22
RC	RHAMNUS CALIFORNICA	CALIFORNIA COFFEEBERRY	5 GAL.	VARIABLE	6
GROUND COVER: AR	ACACIA REDOLENS	PROSTRATE ACACIA	1 GAL.	VARIABLE	84
LJ	LONICERA JAPONICA 'HALLIANA'	HALL'S HONEYSUCKLE	FLATS	18" OC	5,500
MULCH:	A 3-INCH DEEP LAYER OF FULLY COMPOSTED MULCH SHALL BE APPLIED AROUND NEW PLANTINGS AS INDICATED ON PLAN				250 CY

NOTES:
THESE PLANTS WILL CREATE A DENSE VISUAL SCREEN BETWEEN THE SITE REMEDIATION AREA AND THE EXISTING HIGH SCHOOL AND RESIDENTIAL AREAS. PLANTINGS WILL REQUIRE OCCASIONAL SUPPLEMENTAL IRRIGATION DURING SUMMER MONTHS.

AND NOTE 3

PLANTS TO BE ESTABLISHED FROM SEED (SEE NOTE 1)

SEED MIX: MIXED GRASSES AND DROUGHT-TOLERANT SHRUBS

DROUGHT-TOLERANT SHRUBS TO INCLUDE:

BOTANICAL NAME	COMMON NAME
ACHILLEA MILLEFOLIUM	YARROW
ATRIPLEX SEMIBACCATA	CREEPING SALTBUSH
ERIOGONUM FASCICULATUM	EASTERN MOJAVE BUCKWHEAT
ESCHSCHOLZIA CALIFORNICA	CALIFORNIA POPPY
LUPINUS NANUS	SKY LUPINE
MIMULUS LONGIFLORUS	MONKEY FLOWER

NOTES:
THESE PLANTS WILL PROVIDE EROSION PROTECTION FOR THE PORTION OF THE SITE COVERED WITH THE RCRA SUBTITLE C - EQUIVALENT CAP AND THE RCRA SUBTITLE D - EQUIVALENT CAP, AS WELL. YEAR ROUND VEGETATION WITH NO SUPPLEMENTAL IRRIGATION.

LEGEND

- AREA OF PLANTS TO BE ESTABLISHED FROM SEED
- EXISTING FENCE
- NEW PROJECT PERIMETER FENCE
- NEW STRAY BALL FENCE

NOTES

1. CONTRACTOR TO SUBMIT IRRIGATION PLAN FOR PLANTS THAT ARE DROUGHT TOLERANT BUT REQUIRE INITIAL WATER TO TAKE HOLD. SEE SECTION 02930 OF THE SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.
2. NO TREES OR SHRUBS TO BE PLANTED OVER AREAS COVERED WITH RCRA SUBTITLE C & D COVERS.

NOTES (Continued)

3. The installation of landscaping is still underway as of issuance of these As-Built plans and will be completed as part of the early OM&M activities. Any revisions to landscaping will be submitted for EPA approval and be made a part of the As-Built Plans.

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
E	3/2010	AS-BUILT	JJG	KR
D	3/2010	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JJG	KR
C	10/09	ISSUED FOR AGENCY REVIEW	KJK	KR
B	12/2008	ISSUED FOR 60% REVIEW	JJG	ACB
A	12/2008	ISSUED FOR "OVER THE SHOULDER" REVIEW	JJG	ACB

Drawn by: J.R. SANDERS Checked by: Approved by:

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

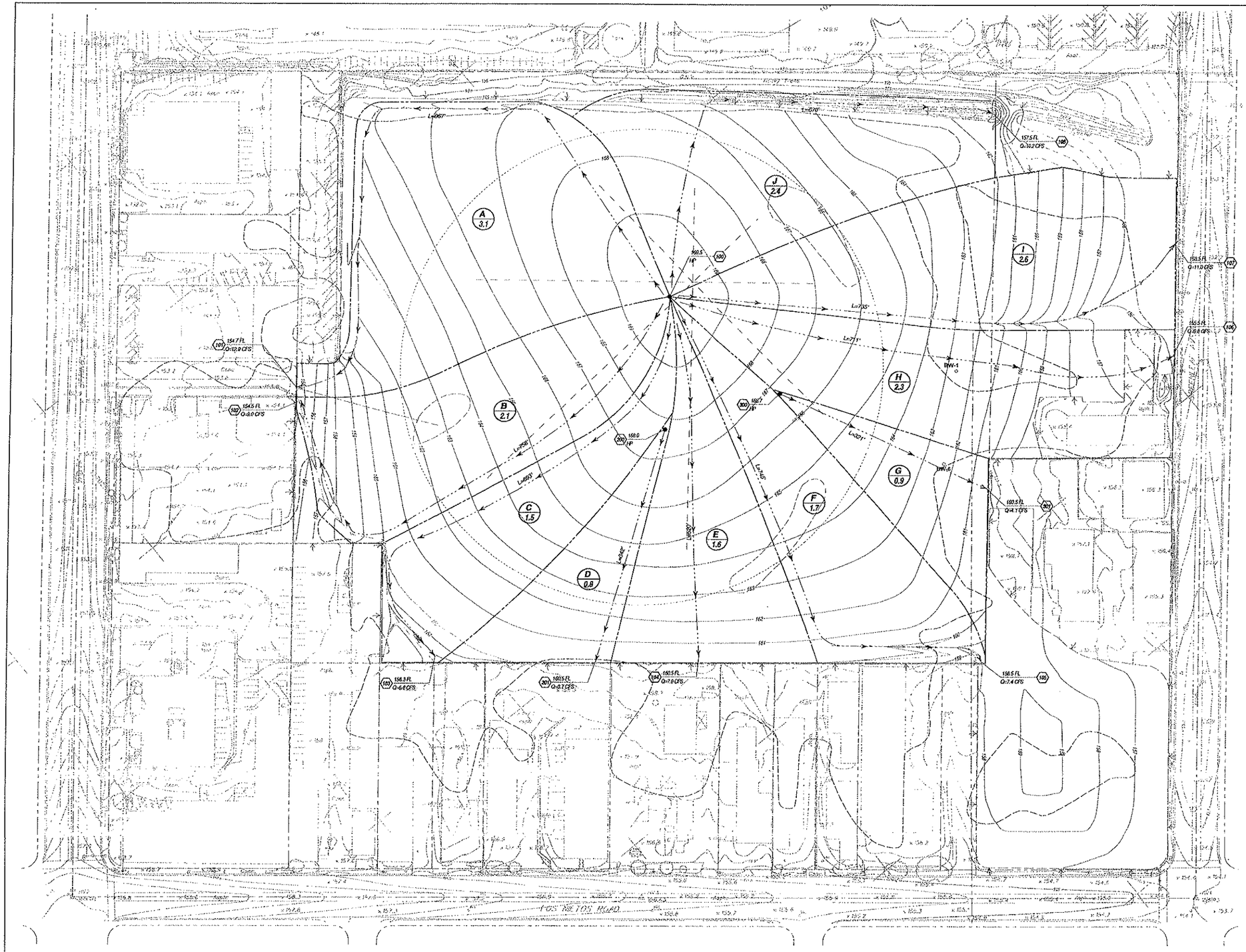
SANTA FE SPRINGS CALIFORNIA

LANDSCAPING AND FENCING PLAN

JOB NO.	SCALE	DRAWING NO.
30747	AS NOTED	E-30747-SG006

TRC REVISION E SHEET 14

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION



SEE SHEET 7 FOR LOCATION OF SOIL BERMS AND GRAVEL DRAINAGE OUTLETS

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

LEGEND

- D / 0.8 — SUBAREA NUMBER / SUBAREA ACREAGE
- 160.5 FL / Q=2.4 CFS — ELEVATION AT NODE
- 207 — NODE NUMBER
- Q AT NODE (100 YEAR STORM)
- HP — HIGH POINT
- L=415' — LENGTH OF FLOW PATH

0 50 100 FEET
SCALE

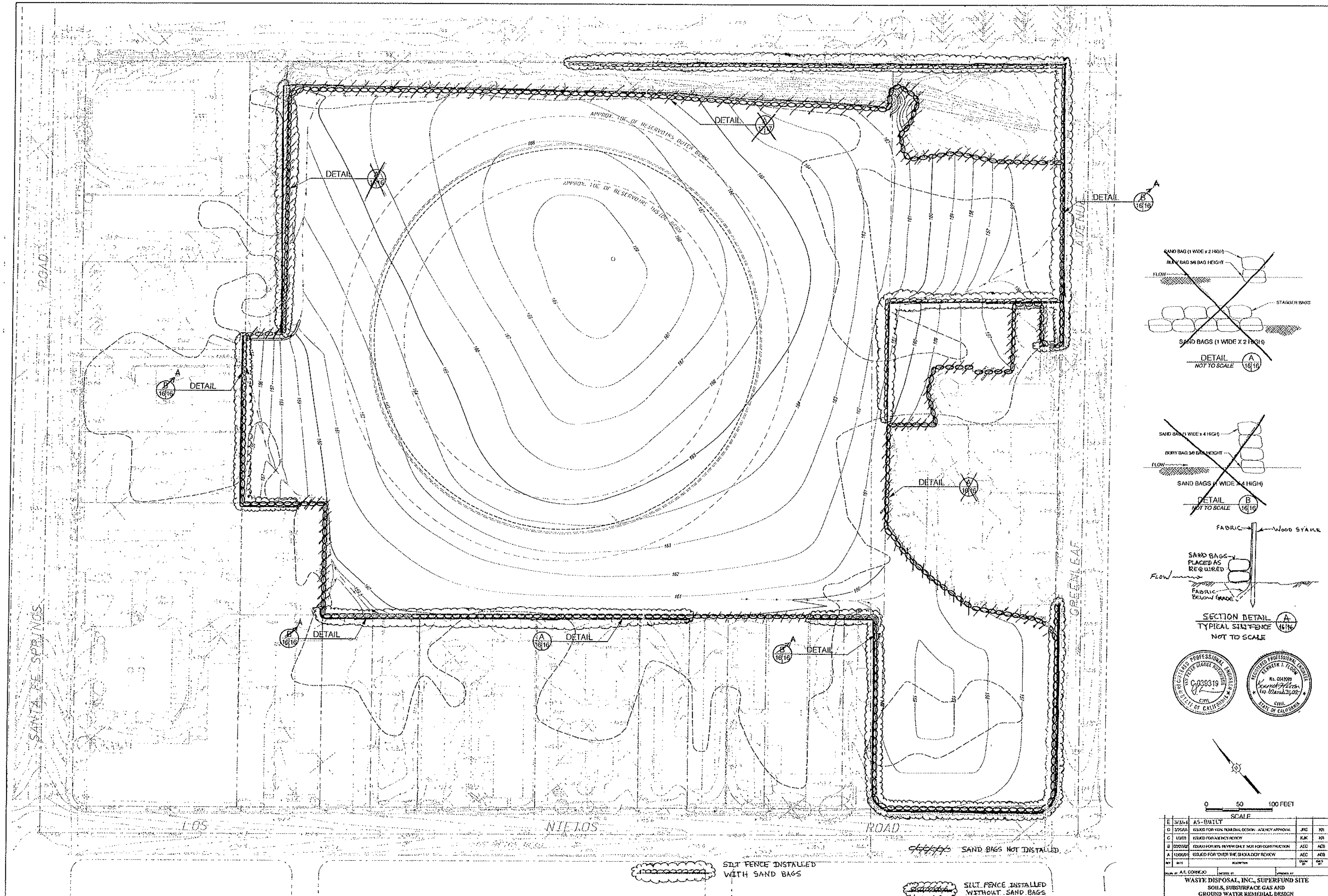
E	7/3/06	AS-BUILT		
D	3/05/03	ISSUED FOR 90% REMEDIAL DESIGN - AGENCY APPROVAL	JHS	KH
C	1/5/00	ISSUED FOR AGENCY REVIEW	KJK	KH
B	02/07/05	ISSUED FOR 90% REVIEW ONLY NOT FOR CONSTRUCTION	ASC	AEB
A	12/20/05	ISSUED FOR OVER THE SHOULDER REVIEW	AEB	AEB
NO.	DATE	DESCRIPTION	DRAWN BY	CHK'D BY

DWN. BY A.E. CORNEJO — DESIGN BY — APPROVED BY

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS CALIFORNIA

TITLE
DESIGN HYDROLOGY MAP
100 YEAR STORM

JOB NO.	SCALE	DRAWING NO.	
30747	1"=50'	E-30747-SG021	
TRC		REVISION E	SHEET 15



REV	DATE	DESCRIPTION	DRAWN BY	CHK'D BY
E	3/3/06	AS-BUILT		
D	3/25/03	ISSUED FOR 100% REMEDIAL DESIGN - AGENCY APPROVAL	JRG	KR
C	1/3/03	ISSUED FOR AGENCY REVIEW	KJK	KR
B	02/07/02	ISSUED FOR 60% REVIEW ONLY NOT FOR CONSTRUCTION	AEC	AEB
A	12/06/01	ISSUED FOR 'OVER THE SHOULDER' REVIEW	AEC	AEB

DRAWN BY A.E. CORNEJO | CHECKED BY | APPROVED BY

WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS — CALIFORNIA

CONSTRUCTION EROSION CONTROL PLAN

JOB NO.	SCALE	DRAWING NO.
30747	1"=50'	E-30747-SG022

	REVISION	SHEET
TRC	~~D~~ E	16

ISSUED FOR AGENCY APPROVAL
NOT FOR CONSTRUCTION

APPROX. TOE OF RESERVOIRS OUTER BERM

APPROX. TOE OF RESERVOIRS INSIDE BERM

DRAINAGE ANCHOR TRENCH

LIMIT OF GAS COLLECTION SYSTEM

GAS COLLECTION PIPES

SINGLE LANE GRAVEL ACCESS ROAD

SITE ACCESS ROAD

3 4-#4 C, (6)-#8 +#8 GRND
(1) 1-1/2"C., (6) #8 + #8 GRND
(1) 1-1/2"C., (TELECOMM)

EXISTING SCE UTILITY POLE (TYP.)

LOS NIETOS ROAD

SEE SHEET 7A FOR INDICATION OF PRE-CONSTRUCTION FEATURES THAT WERE REMOVED

REFERENCE NOTES

1. PROVIDE SEAL-OFF 18" ABOVE GRADE
2. USE EXISTING ELECTRICAL SERVICE PANEL P1, 200A, 208/120V, 3P, 4W. REPAIR AND RESUPPORT AS NECESSARY TO MAKE PANEL SECURE AND TO MAINTAIN NEMA TYPE 3R RATING
3. PROVIDE SCH. 40 PVC BELOW GRADE. PROVIDE RIGID CONDUIT SWEEPS AND RIGID CONDUIT ABOVE GRADE. PROVIDE 50% OVERLAP OF 10 MIL TAPE FOR EQUIVALENT 20 MIL PROTECTION OF RIGID CONDUIT BELOW GRADE TO 6" ABOVE GRADE.

0 50 100 FEET
SCALE

B	3/26/04	AS-BUILT	GGM	YG
A	02/09/04	ISSUED FOR AGENCY REVIEW	GGM	YG
NO.	DATE	DESCRIPTION	DRAWN BY	CHK'D BY

DRAWN BY — CHECKED BY — APPROVED BY

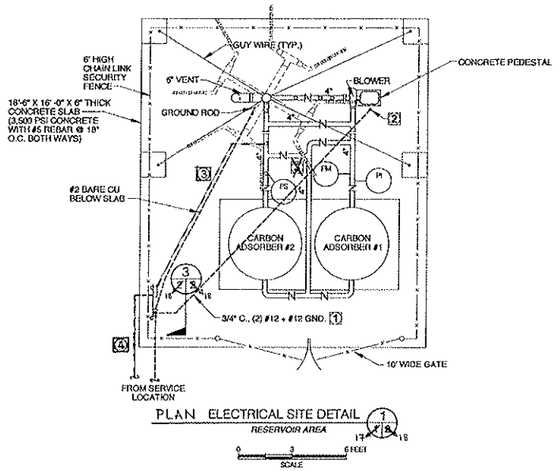
WASTE DISPOSAL, INC., SUPERFUND SITE
SOILS, SUBSURFACE GAS AND
GROUND WATER REMEDIAL DESIGN

SANTA FE SPRINGS — CALIFORNIA

TITLE: ELECTRICAL SITE PLAN

JOB NO.	SCALE	DRAWING NO.
29022402	AS NOTED	E-29022402-SE01

TRC — REVISION B — SHEET 17



PLAN ELECTRICAL SITE DETAIL (1/17, 1/18)
RESERVOIR AREA
SCALE 0 3 6 FEET

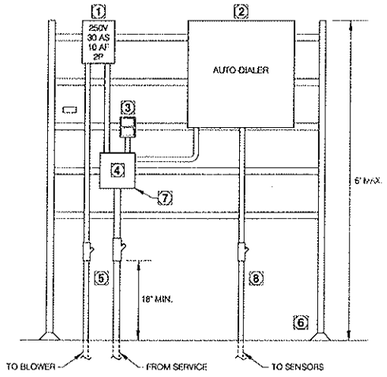
DETAIL NOTES

[1] PROVIDE SCH. 40 PVC BELOW GRADE. PROVIDE RIGID CONDUIT 90° BENDS AND RIGID CONDUIT ABOVE GROUND. PROVIDE 50% OVERLAP OF 10 MIL TAPE FOR EQUIVALENT 20 MIL PROTECTION OF RIGID CONDUIT BELOW GRADE TO 6" ABOVE GRADE.

[2] PROVIDE SEAL-OFF 18" ABOVE GRADE. TRANSITION TO SEALTITE FLEXIBLE CONDUIT (MAX. 18" LENGTH) FOR CONNECTION TO MOTOR.

[3] PROVIDE 1" CONDUIT TO SENSORS FROM AUTO-DIALER. PROVIDE BELL BOX AND SUPPORT AT STUB-UP LOCATION. ROUTE SEAL-TIGHT TO SENSOR LOCATIONS.

[4] CONDUIT FOR LOW VOLTAGE TELECOMMUNICATION AND SIGNAL CABLES.



ELEVATION ELECTRICAL SITE DETAIL (3/17, 2/18)
ELECTRICAL EQUIPMENT RACK
SCALE 0 1 2 FEET

DETAIL NOTES

[1] PROVIDE NEMA 3R 30A, 250V, 1P FUSED DISCONNECT. PROVIDE 10A DUAL-ELEMENT TIME DELAY FUSES.

[2] PROVIDE NEMA 3R 24" X 24" X 8" HOFFMAN ENCLOSURE FOR AUTO-DIALER. ROUTE CIRCUIT AND CONNECT PER PANEL SCHEDULE.

[3] PROVIDE WEATHER-PROOF, GFI 20A DUPLEX SERVICE RECEPTACLE OUTLET. ROUTE CIRCUIT AND CONNECT PER PANEL SCHEDULE.

[4] PROVIDE NEMA 3R 8" X 8" X 4" JUNCTION BOX.

[5] PROVIDE SEAL-OFFS ON CONDUITS EMERGING FROM BELOW GRADE.

[6] PROVIDE STRUT RACK. CONSTRUCT RACK WITH GALVANIZED DEEP STRUT. RACK TO BE INDEPENDENT OF FENCE. PROVIDE SUPPORT STANCHIONS AND ADDITIONAL INDEPENDENT SUPPORT AS REQUIRED.

[7] PROVIDE AND INSTALL #2 AWG SOLID BARE COPPER, AND BOND TO SLAB REBAR, LOCAL FENCE, AND 5/8" X 10' GROUND ROD. COORDINATE GROUND ROD INSTALLATION AT VENT RISER/MEMBRANE PENETRATION WITH PROJECT MANAGERS. PROVIDE EXOTHERMIC WELD TO EACH. CONNECT TO 8 AWG GROUNDING CONDUCTOR FROM SERVICE.

[8] PROVIDE 1" CONDUIT TO SENSORS FROM AUTO-DIALER. PROVIDE BELL BOX AND SUPPORT AT STUB-UP LOCATION. ROUTE SEAL-TIGHT TO SENSOR LOCATIONS.

PANEL 'P1' SEE SHEET 17 FOR PANEL 'P1' LOCATION

VOLTS: 208/120V — PHASE: 3 — WIRE: 4 — A.I.C. RATING: 22,000 — MAIN:200A MCB — MOUNTING: SURFACE — BUSSING:225A

LOAD	QTY	T	A-VA	B-VA	C-VA	BKR	CT	CT	BKR	A-VA	B-VA	C-VA	T	QTY	LOAD
RECEPT – EXTERIOR	1	R	180			20/1P	1	2	60/3P						SPARE
TRAILER SUBPANEL	1	N	3600	3600	3600	100/2P	3	4							
		N	3600	3600	3600		5	6							
SPACE							7	8	100/2P	3600	3600	3600	N	1	TRAILER SUBPANEL
SPACE							9	10					N		
SPACE							11	12	100/2P	3600	3600	3600	N	1	TRAILER SUBPANEL
SPACE							13	14					N		
RECEPT – EXTERIOR	1	R	180	400		20/1P	15	16	15/2P	416	416		M	1	GAS EXTRACT. BLOWER MOTOR
SPACE							17	18				416	M		
SPACE							19	20	20/1P		300	300	N	1	GAS EXTRACT. AUTO-DIALER
SPACE							21	22	20/1P	1200			R	1	RECEPT – GAS EXTRACT. AREA
SPACE							23	24							SPACE

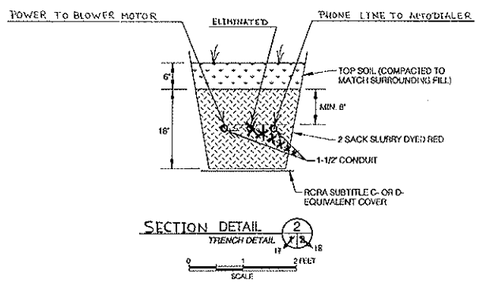
PHASE TOTALS:	7656	8222	7622	24530 =TOTAL CONNECTED LOAD,VA (FOR DEMAND LOAD SEE BELOW)
PHASE AMPERES:	64.6	76.8	63.5	

*DEMAND LOAD CALCULATION:

L=LIGHTING LOADS:		1.25	X	0	= 0 VA
C=CONTINUOUS LOADS, OTHER:		1.25	X	0	= 0 VA
M=MOTOR LOADS (INCL LGST):		1.00	X	832	= 832 VA
LARGEST, VA:		0.25	X	832	= 208 VA
R=RECEPTACLES: 1ST 10K:		1.00	X	1760	= 1760 VA
BALANCE:		0.50	X	0	= 0 VA
K=KITCHEN LOADS: QTY:	0	1.00	X	0	= 0 VA
N=NONCONTINUOUS LOADS, OTHER:		1.00	X	21918	= 21918 VA
(P=PANEL, INCL. IN ABOVE)		TOTAL N.E.C. DEMAND LOAD			= 24738 VA = 68.7 AMPERES

NOTES:
RELOCATE EXISTING TRAILER SUB-FEED FROM CIRCUITS 5 AND 7 TO CIRCUITS 3 AND 5.

LOAD SCHEDULE



SECTION DETAIL (2/17, 2/18)
TRENCH DETAIL
SCALE 0 1 2 FEET

NO	DATE	DESCRIPTION	BY	CHK'D
B	3/3/16	AS-BUILT		
A	08/20/04	ISSUED FOR AGENCY REVIEW	GKM	WS

WASTE DISPOSAL INC. SUPERFUND SITE
SOILS, SUBSURFACE GAS AND GROUND WATER REMEDIAL DESIGN
SANTA FE SPRINGS — CALIFORNIA

~~SOIL GAS EXTRACTION, VENTING AND TREATMENT SYSTEM SECTIONS AND DETAILS~~
ELECTRICAL SITE DETAILS

JOB NO.	SCALE	DRAWING NO.
29022402	AS NOTED	E-29022402-SE02
TRC	DWN BY: B	SHEET: 18

REGISTERED PROFESSIONAL ENGINEER — No. E015870 — 06/05 — ELECTRICAL — STATE OF CALIFORNIA